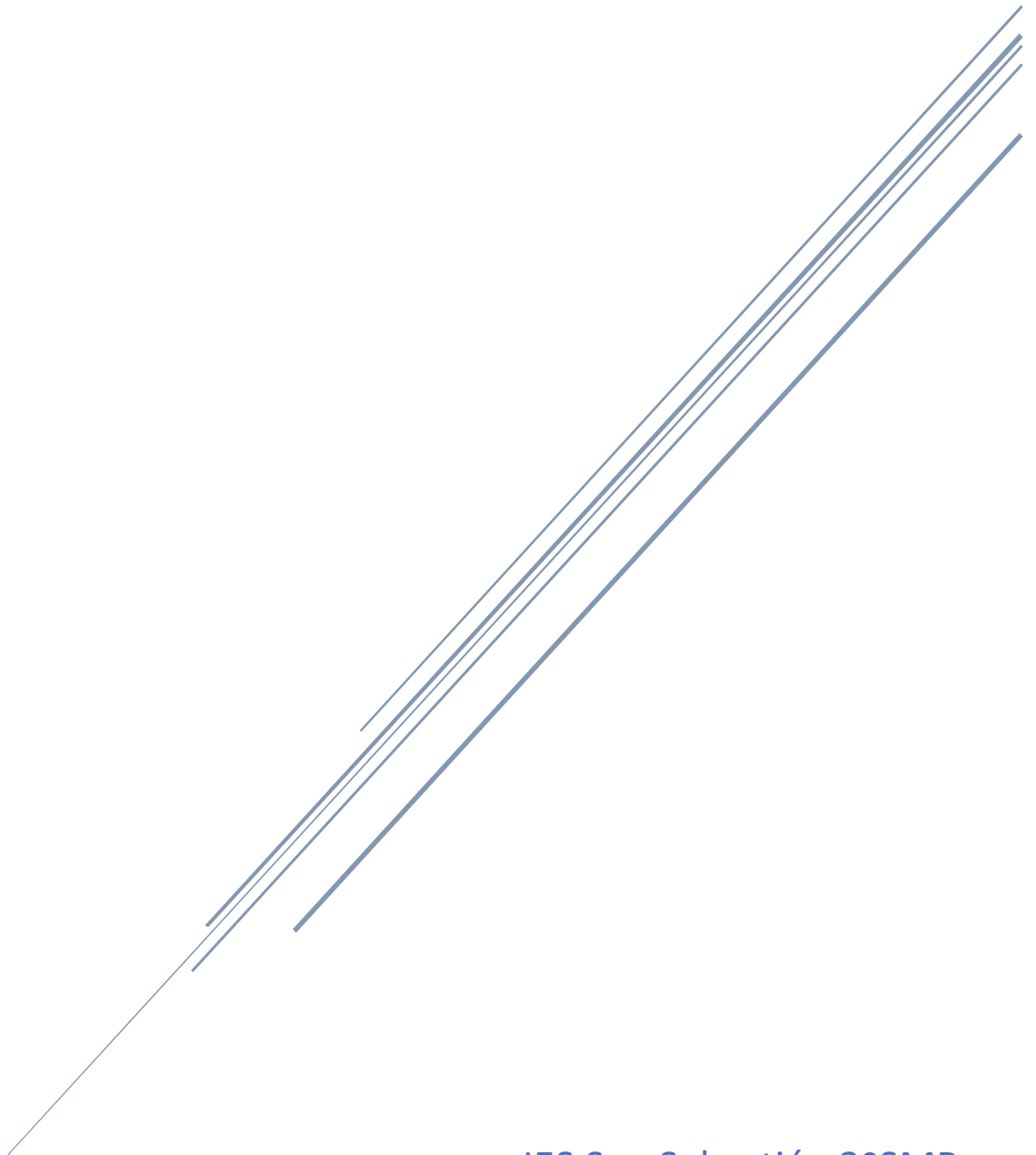


# PRACTICA 5.3 AWEB

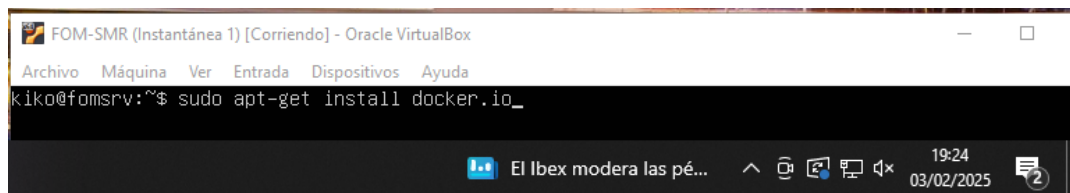
## Tarea Contenedores



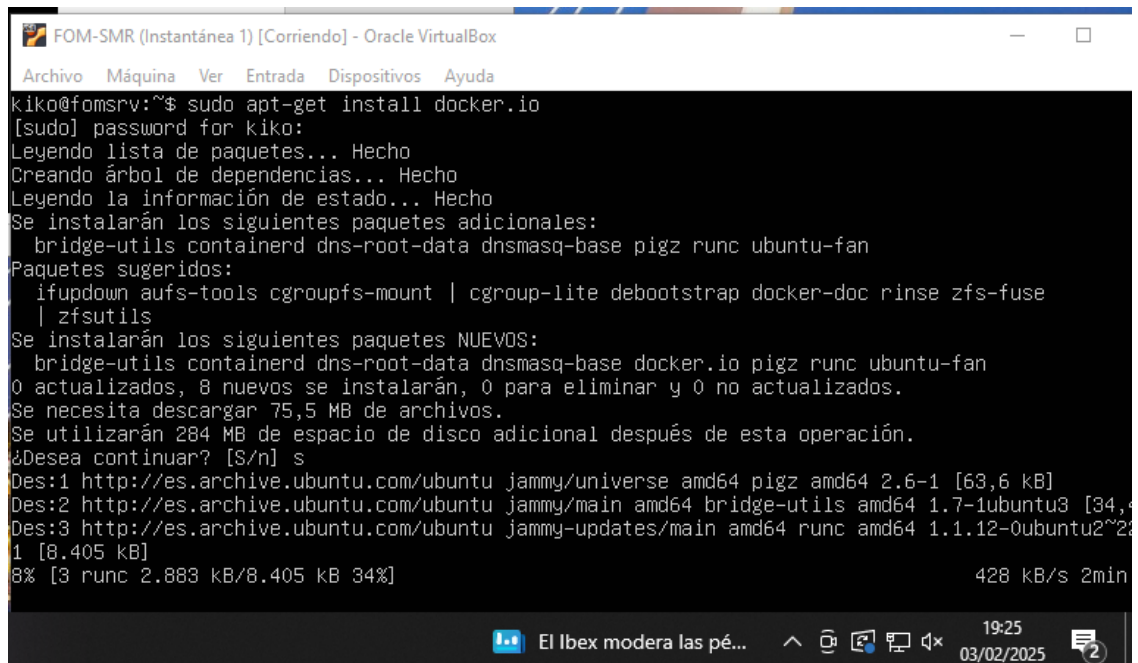
IES San Sebastián 2ºSMR  
Francisco Olaya Macías

# Instalar Docker en Ubuntu Server

- ¿Qué es Docker? ¿Para qué se utiliza?  
Docker es una plataforma de contenedorización que permite a los desarrolladores empaquetar, distribuir y ejecutar aplicaciones en entornos aislados llamados contenedores.
- Para que sirven los contenedores □ Instalar DOCKER



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
kiko@fomsrv:~$ sudo apt-get install docker.io_
```

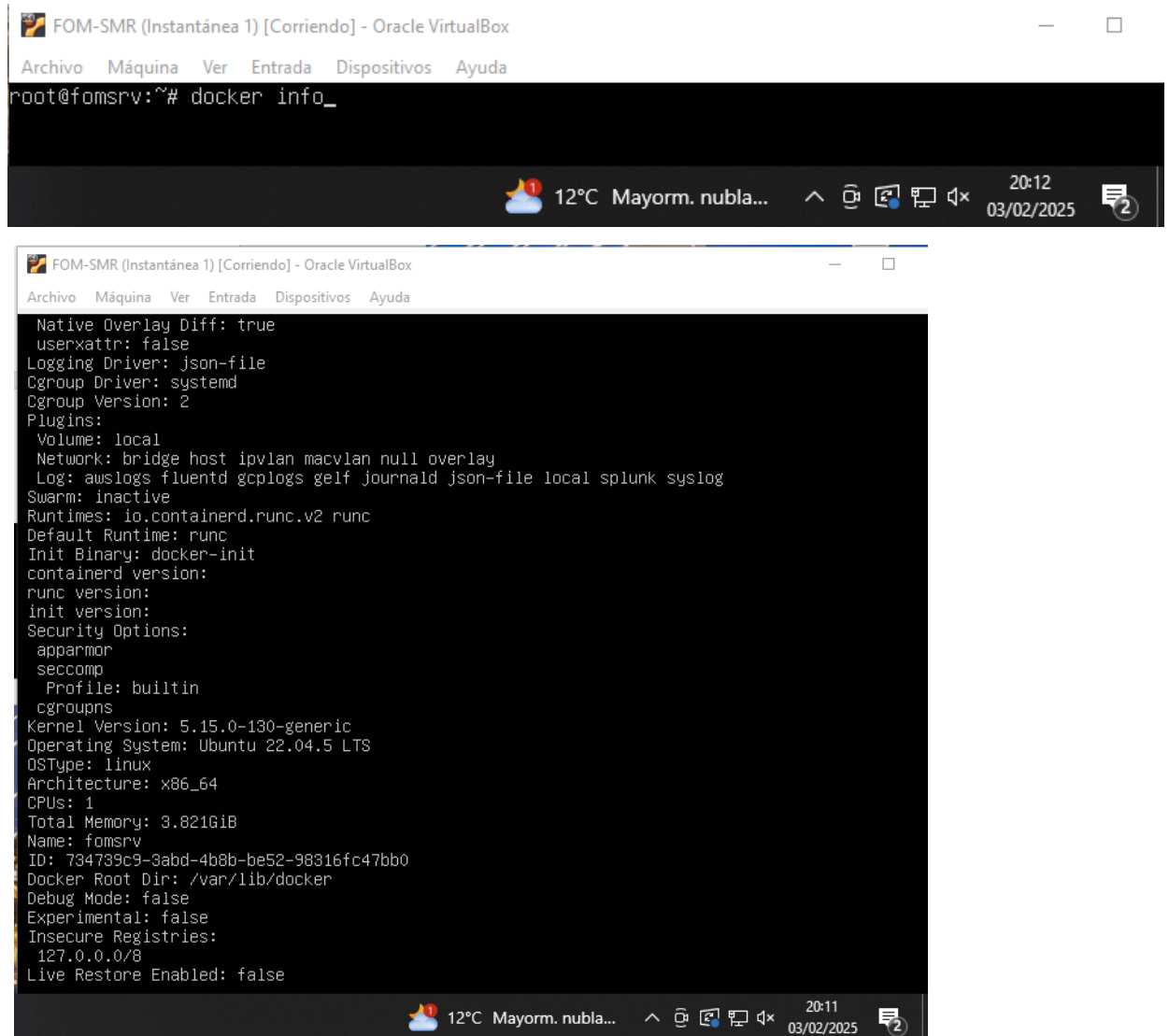


```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
kiko@fomsrv:~$ sudo apt-get install docker.io
[sudo] password for kiko:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes adicionales:
  bridge-utils containerd dns-root-data dnsmasq-base pigz runc ubuntu-fan
Paquetes sugeridos:
  ifupdown aufs-tools cgroupfs-mount | cgroup-lite debotstrap docker-doc rinse zfs-fuse
  | zfsutils
Se instalarán los siguientes paquetes NUEVOS:
  bridge-utils containerd dns-root-data dnsmasq-base docker.io pigz runc ubuntu-fan
0 actualizados, 8 nuevos se instalarán, 0 para eliminar y 0 no actualizados.
Se necesita descargar 75,5 MB de archivos.
Se utilizarán 284 MB de espacio de disco adicional después de esta operación.
¿Desea continuar? [S/n] s
Des:1 http://es.archive.ubuntu.com/ubuntu jammy/universe amd64 pigz amd64 2.6-1 [63,6 kB]
Des:2 http://es.archive.ubuntu.com/ubuntu jammy/main amd64 bridge-utils amd64 1.7-1ubuntu3 [34,4
Des:3 http://es.archive.ubuntu.com/ubuntu jammy-updates/main amd64 runc amd64 1.1.12-0ubuntu2~22
1 [8.405 kB]
8% [3 runc 2.883 kB/8.405 kB 34%] 428 kB/s 2min
```

```
783 sudo apt-get install docker.io
784 docker infor
785 docker info
786 sudo docker info
787 sudo docker version
788 docker
789 sudo docker search fedora
790 docker pull fedora
791 sudo docker pull fedora
792 sudo docker pull debian
```

- Información de docker

### Docker info

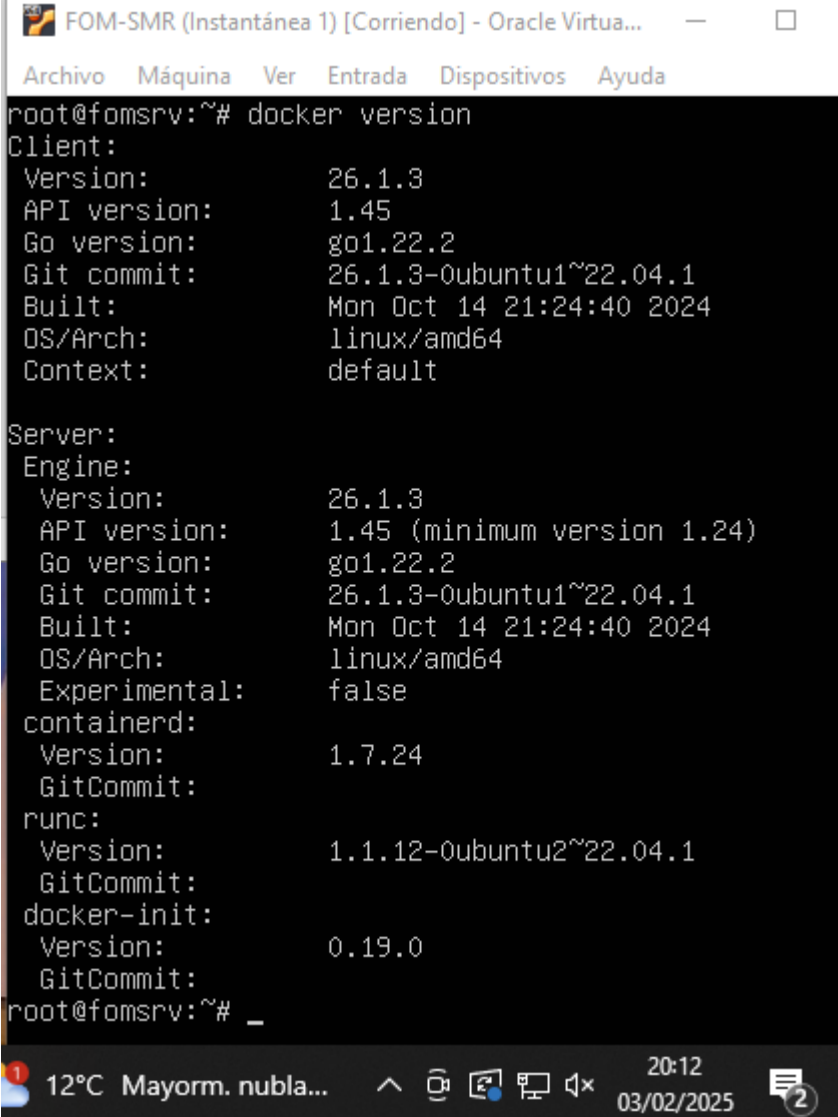


```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# docker info_

Native Overlay Diff: true
userxattr: false
Logging Driver: json-file
Cgroup Driver: systemd
Cgroup Version: 2
Plugins:
  Volume: local
  Network: bridge host ipvlan macvlan null overlay
  Log: awslogs fluentd gcplogs gelf journald json-file local splunk syslog
Swarm: inactive
Runtimes: io.containerd.runc.v2 runc
Default Runtime: runc
Init Binary: docker-init
containerd version:
runc version:
init version:
Security Options:
  apparmor
  seccomp
   Profile: builtin
  cgroups
Kernel Version: 5.15.0-130-generic
Operating System: Ubuntu 22.04.5 LTS
OSType: linux
Architecture: x86_64
CPUs: 1
Total Memory: 3.821GiB
Name: fomsrv
ID: 734739c9-3abd-4b8b-be52-98316fc47bb0
Docker Root Dir: /var/lib/docker
Debug Mode: false
Experimental: false
Insecure Registries:
  127.0.0.0/8
Live Restore Enabled: false
```

Versión de docker

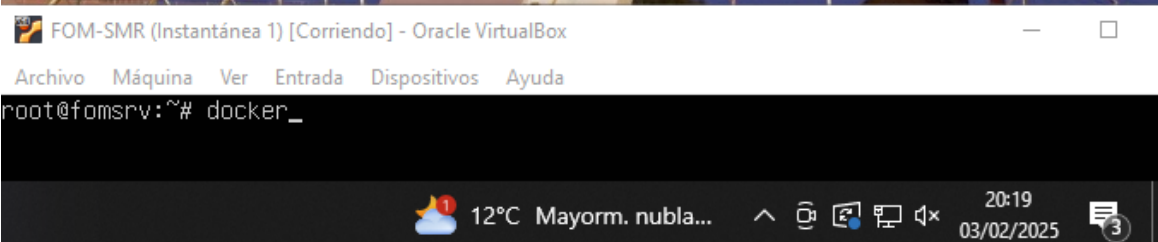
### Docker version



```
root@fomsrv:~# docker version
Client:
 Version:           26.1.3
 API version:       1.45
 Go version:        go1.22.2
 Git commit:        26.1.3-0ubuntu1~22.04.1
 Built:             Mon Oct 14 21:24:40 2024
 OS/Arch:           linux/amd64
 Context:           default

Server:
 Engine:
  Version:          26.1.3
  API version:      1.45 (minimum version 1.24)
  Go version:       go1.22.2
  Git commit:       26.1.3-0ubuntu1~22.04.1
  Built:            Mon Oct 14 21:24:40 2024
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.7.24
  GitCommit:
 runc:
  Version:          1.1.12-0ubuntu2~22.04.1
  GitCommit:
 docker-init:
  Version:          0.19.0
  GitCommit:
root@fomsrv:~# _
```

Si escribimos **docker** aparece sus comandos



```
root@fomsrv:~# docker _
_
```

```

FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

load      Load an image from a tar archive or STDIN
logs      Fetch the logs of a container
pause     Pause all processes within one or more containers
port      List port mappings or a specific mapping for the container
rename    Rename a container
restart   Restart one or more containers
rm        Remove one or more containers
rmi       Remove one or more images
save      Save one or more images to a tar archive (streamed to STDOUT by default)
start     Start one or more stopped containers
stats     Display a live stream of container(s) resource usage statistics
stop      Stop one or more running containers
tag       Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
top       Display the running processes of a container
unpause   Unpause all processes within one or more containers
update    Update configuration of one or more containers
wait      Block until one or more containers stop, then print their exit codes

Global Options:
  --config string      Location of client config files (default "/root/.docker")
  -c, --context string  Name of the context to use to connect to the daemon (overrides
                        DOCKER_HOST env var and default context set with "docker
                        context")
  -D, --debug          Enable debug mode
  -H, --host list      Daemon socket to connect to
  -l, --log-level string Set the logging level ("debug", "info", "warn", "error",
                        "fatal") (default "info")
  --tls               Use TLS; implied by --tlsverify
  --tlscacert string  Trust certs signed only by this CA (default "/root/.docker/ca.pem")
  --tlscert string    Path to TLS certificate file (default "/root/.docker/cert.pem")
  --tlskey string     Path to TLS key file (default "/root/.docker/key.pem")
  --tlsverify         Use TLS and verify the remote
  -v, --version       Print version information and quit

Run 'docker COMMAND --help' for more information on a command.

For more help on how to use Docker, head to https://docs.docker.com/go/guides/
root@fomsrv:~#

```

Ver el estado de Docker si se está ejecutando.

```

FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

root@fomsrv:~# sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2025-02-03 19:09:04 UTC; 11min ago
     TriggeredBy: ● docker.socket
    Docs: https://docs.docker.com
   Main PID: 14035 (dockerd)
      Tasks: 7
     Memory: 27.9M
        CPU: 347ms
    CGroup: /system.slice/docker.service
            └─14035 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd

feb 03 19:09:03 fomsrv systemd[1]: Starting Docker Application Container Engine...
feb 03 19:09:03 fomsrv dockerd[14035]: time="2025-02-03T19:09:03.107805213Z" level=info msg="Starting daemon"
feb 03 19:09:03 fomsrv dockerd[14035]: time="2025-02-03T19:09:03.109220674Z" level=info msg="Starting daemon"
feb 03 19:09:03 fomsrv dockerd[14035]: time="2025-02-03T19:09:03.708693350Z" level=info msg="Starting daemon"
feb 03 19:09:04 fomsrv dockerd[14035]: time="2025-02-03T19:09:04.085444265Z" level=info msg="Starting daemon"
feb 03 19:09:04 fomsrv dockerd[14035]: time="2025-02-03T19:09:04.124107352Z" level=info msg="Starting daemon"
feb 03 19:09:04 fomsrv dockerd[14035]: time="2025-02-03T19:09:04.124785883Z" level=info msg="Starting daemon"
feb 03 19:09:04 fomsrv dockerd[14035]: time="2025-02-03T19:09:04.293112176Z" level=info msg="Starting daemon"
feb 03 19:09:04 fomsrv systemd[1]: Started Docker Application Container Engine.
lines 1-21/21 (END)

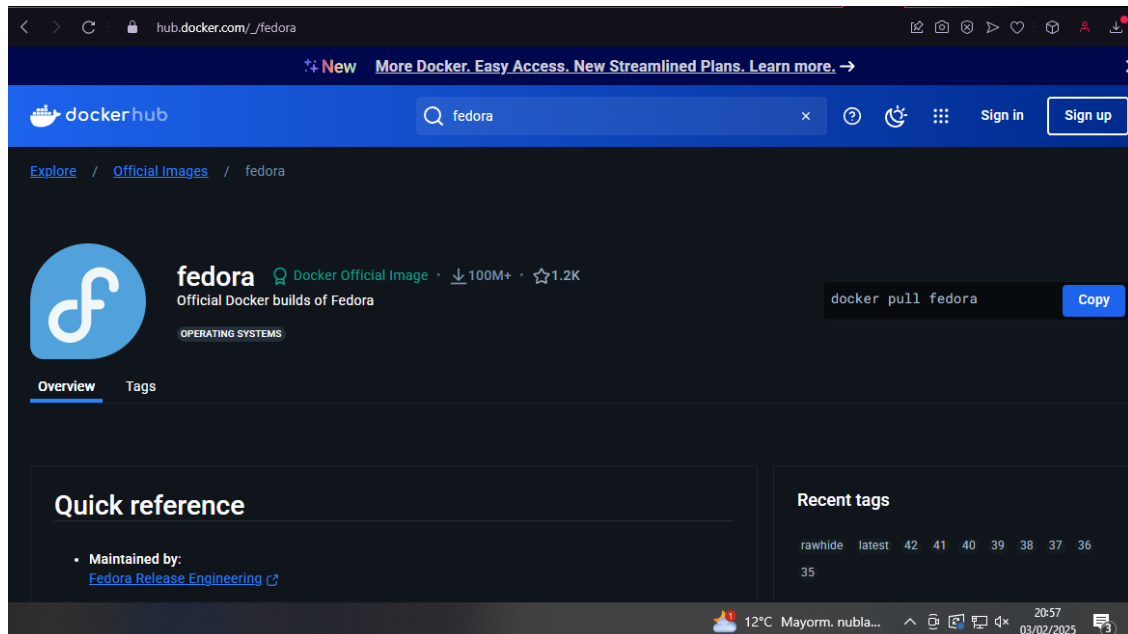
```

## Búsqueda las imágenes que necesitamos. Descargamos las imágenes de *Docker HUB*

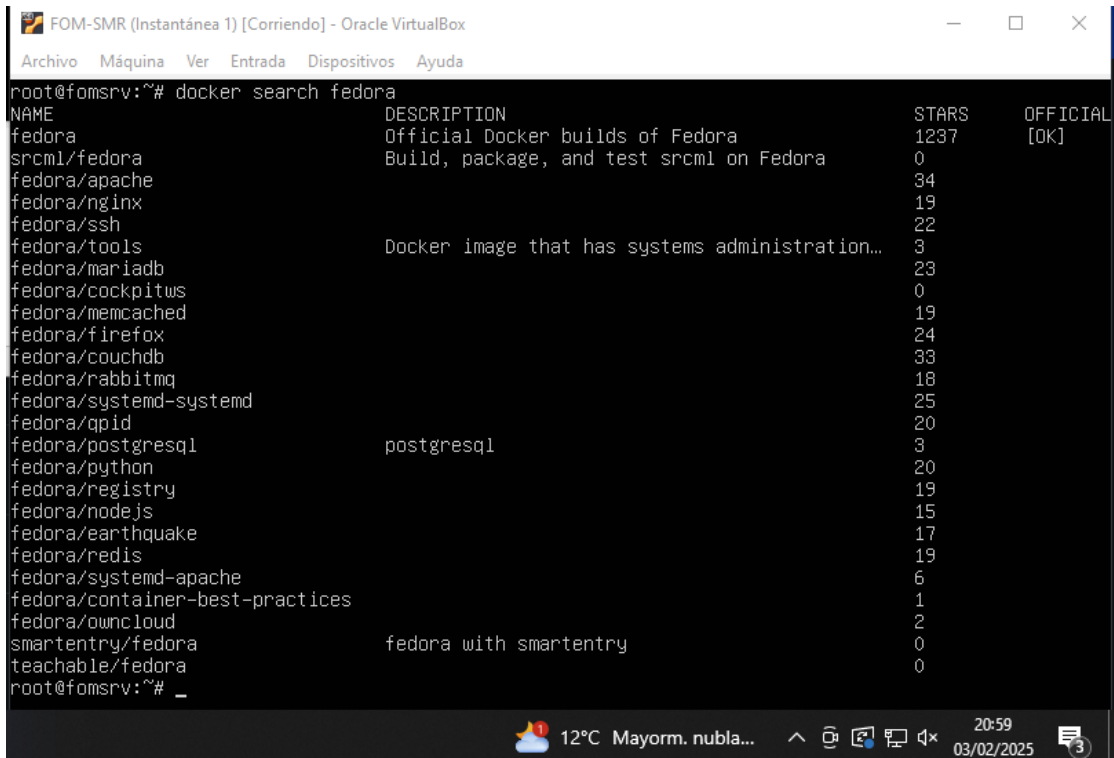
Por ejemplo, Fedora

Esta es la Web donde podemos encontrar todas las imágenes de Docker

<https://hub.docker.com/>

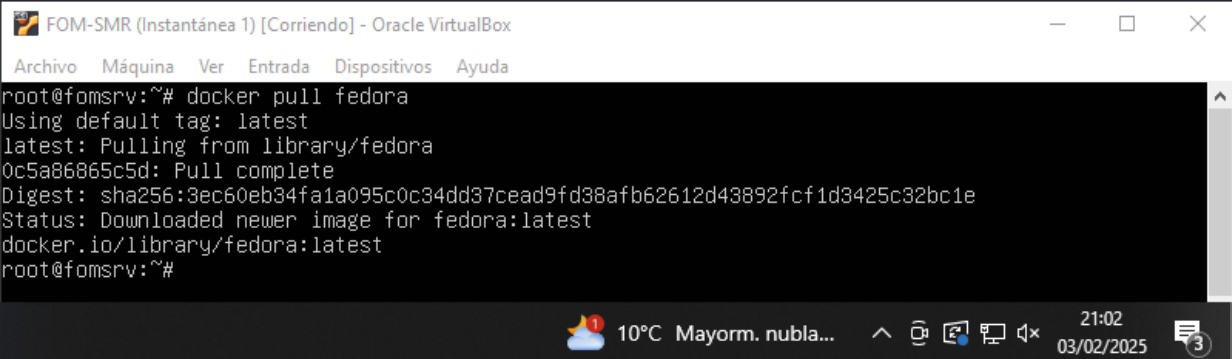


### ❑ Búsqueda de fedora a través de consola



### Para descargar la imagen de Fedora

#### **Sudo docker pull fedora**



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker pull fedora
Using default tag: latest
latest: Pulling from library/fedora
0c5a86865c5d: Pull complete
Digest: sha256:3ec60eb34fa1a095c0c34dd37cead9fd38afb62612d43892fcfd1d3425c32bc1e
Status: Downloaded newer image for fedora:latest
docker.io/library/fedora:latest
root@fomsrv:~#
```

### Instalar debian

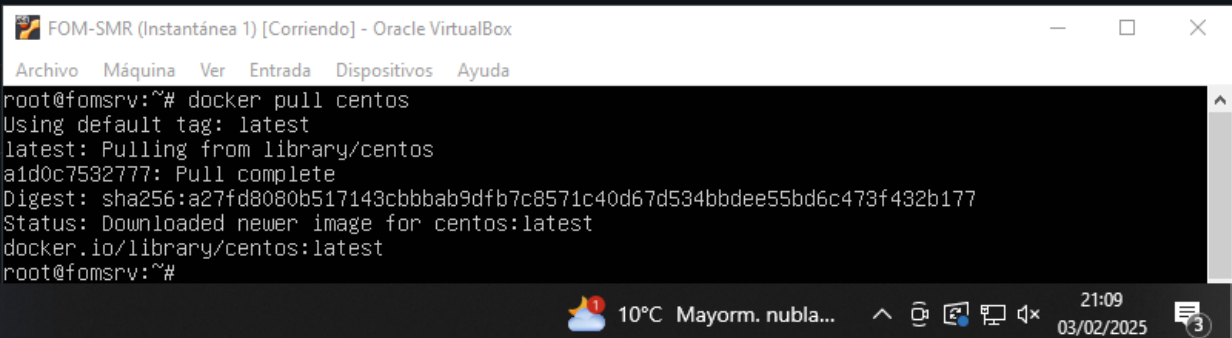
#### **Sudo docker pull debians**



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker pull debians
Using default tag: latest
Error response from daemon: pull access denied for debians, repository does not exist or may require 'docker login': denied: requested access to the resource is denied
root@fomsrv:~#
```

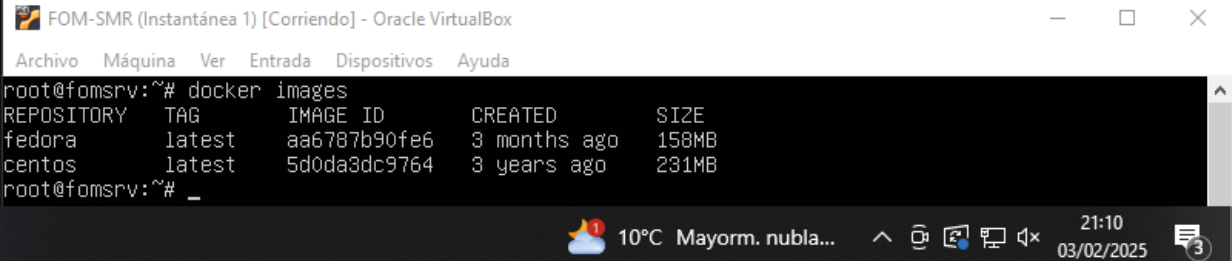
### Instalar centos docker

#### **Docker pull centos**



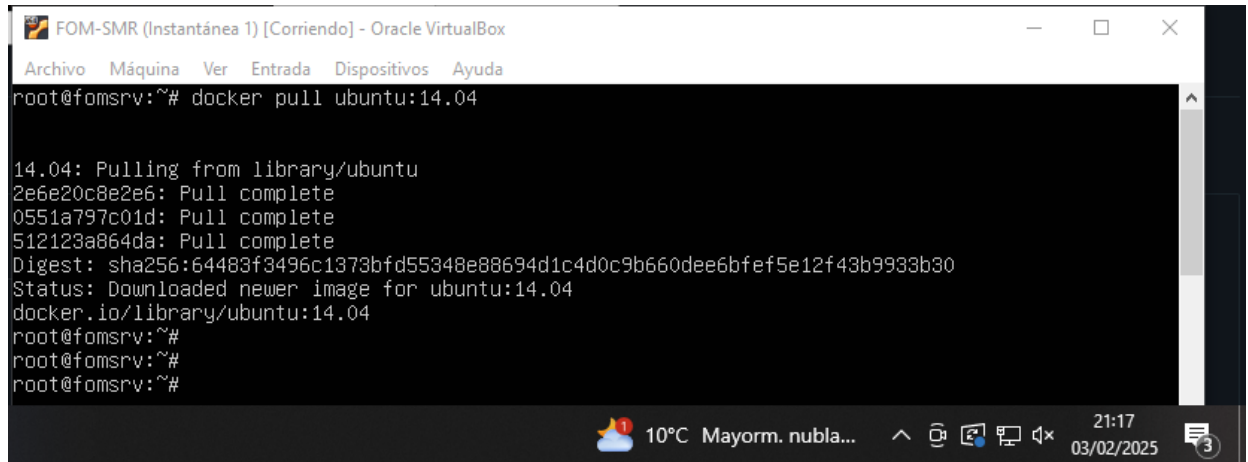
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker pull centos
Using default tag: latest
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
docker.io/library/centos:latest
root@fomsrv:~#
```

### Aquí podemos ver las imágenes instaladas



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
fedora        latest   aa6787b90fe6   3 months ago   158MB
centos        latest   5d0da3dc9764   3 years ago    231MB
root@fomsrv:~#
```

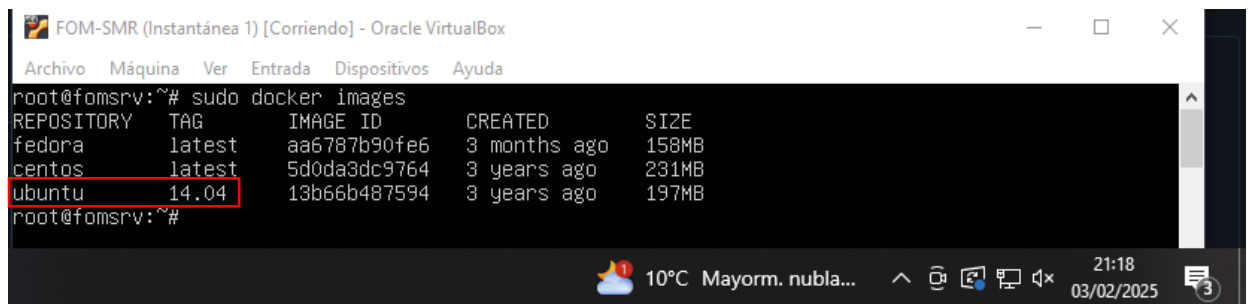
Por ejemplo, si queremos instalar **Ubuntu la versión 14.04**, lo indicamos en el “tag”



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker pull ubuntu:14.04

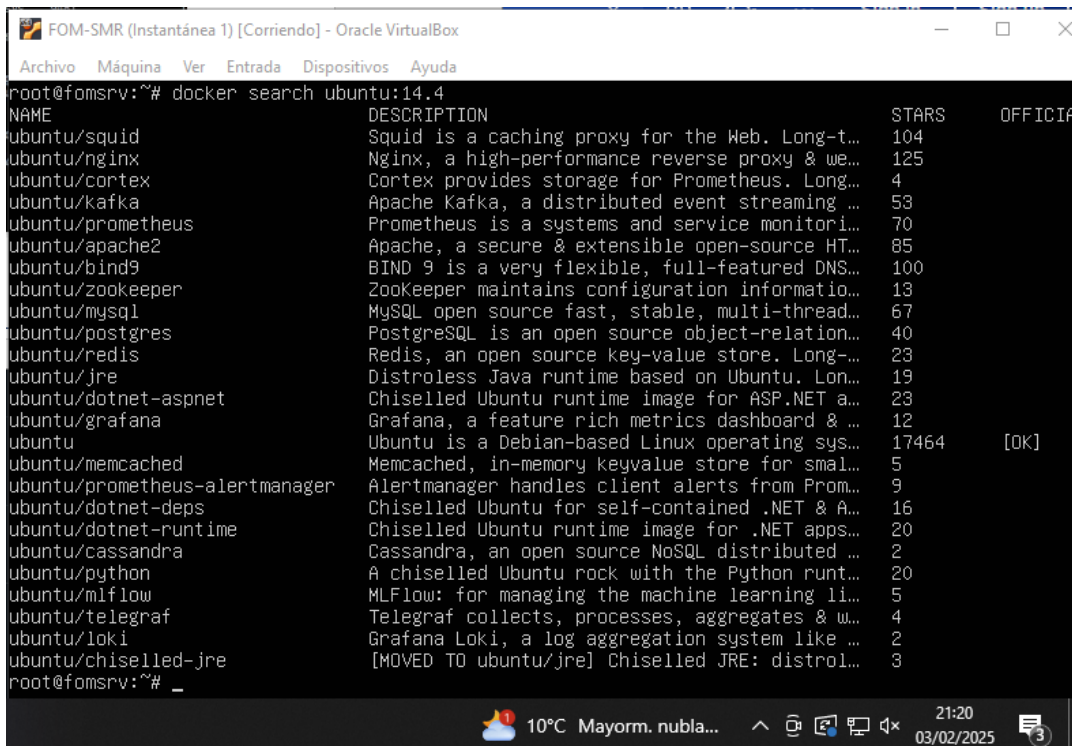
14.04: Pulling from library/ubuntu
2e6e20c8e2e6: Pull complete
0551a797c01d: Pull complete
512123a864da: Pull complete
Digest: sha256:64483f3496c1373bfd55348e88694d1c4d0c9b660dee6bfe5e12f43b9933b30
Status: Downloaded newer image for ubuntu:14.04
docker.io/library/ubuntu:14.04
root@fomsrv:~#
root@fomsrv:~#
root@fomsrv:~#
```

### Versión instalada



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
fedora        latest    aa6787b90fe6   3 months ago   158MB
centos        latest    5d0da3dc9764   3 years ago    231MB
ubuntu        14.04     13b66b487594   3 years ago    197MB
root@fomsrv:~#
```

Con este comando podemos ver más información de la versión instalada



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker search ubuntu:14.4
NAME                DESCRIPTION                                     STARS     OFFICIAL
ubuntu/squid         Squid is a caching proxy for the Web. Long-t... 104
ubuntu/nginx         Nginx, a high-performance reverse proxy & we... 125
ubuntu/cortex        Cortex provides storage for Prometheus. Long... 4
ubuntu/kafka          Apache Kafka, a distributed event streaming ... 53
ubuntu/prometheus     Prometheus is a systems and service monitori... 70
ubuntu/apache2        Apache, a secure & extensible open-source HT... 85
ubuntu/bind9          BIND 9 is a very flexible, full-featured DNS... 100
ubuntu/zookeeper      ZooKeeper maintains configuration informatio... 13
ubuntu/mysql          MySQL open source fast, stable, multi-thread... 67
ubuntu/postgres       PostgreSQL is an open source object-relatio... 40
ubuntu/redis          Redis, an open source key-value store. Long-... 23
ubuntu/jre             Distrosless Java runtime based on Ubuntu. Lon... 19
ubuntu/dotnet-aspnet   Chiselled Ubuntu runtime image for ASP.NET a... 23
ubuntu/grafana         Grafana, a feature rich metrics dashboard & ... 12
ubuntu                Ubuntu is a Debian-based Linux operating sys... 17464    [OK]
ubuntu/memcached       Memcached, in-memory keyvalue store for smal... 5
ubuntu/prometheus-alertmanager Alertmanager handles client alerts from Prom... 9
ubuntu/dotnet-deps     Chiselled Ubuntu for self-contained .NET & A... 16
ubuntu/dotnet-runtime Chiselled Ubuntu runtime image for .NET apps... 20
ubuntu/cassandra       Cassandra, an open source NoSQL distributed ... 2
ubuntu/python          A chiselled Ubuntu rock with the Python runt... 20
ubuntu/mlflow          MLFlow: for managing the machine learning li... 5
ubuntu/telegraf        Telegraf collects, processes, aggregates & w... 4
ubuntu/loki            Grafana Loki, a log aggregation system like ... 2
ubuntu/chiselled-jre   [MOVED TO ubuntu/jre] Chiselled JRE: distro... 3
root@fomsrv:~#
```



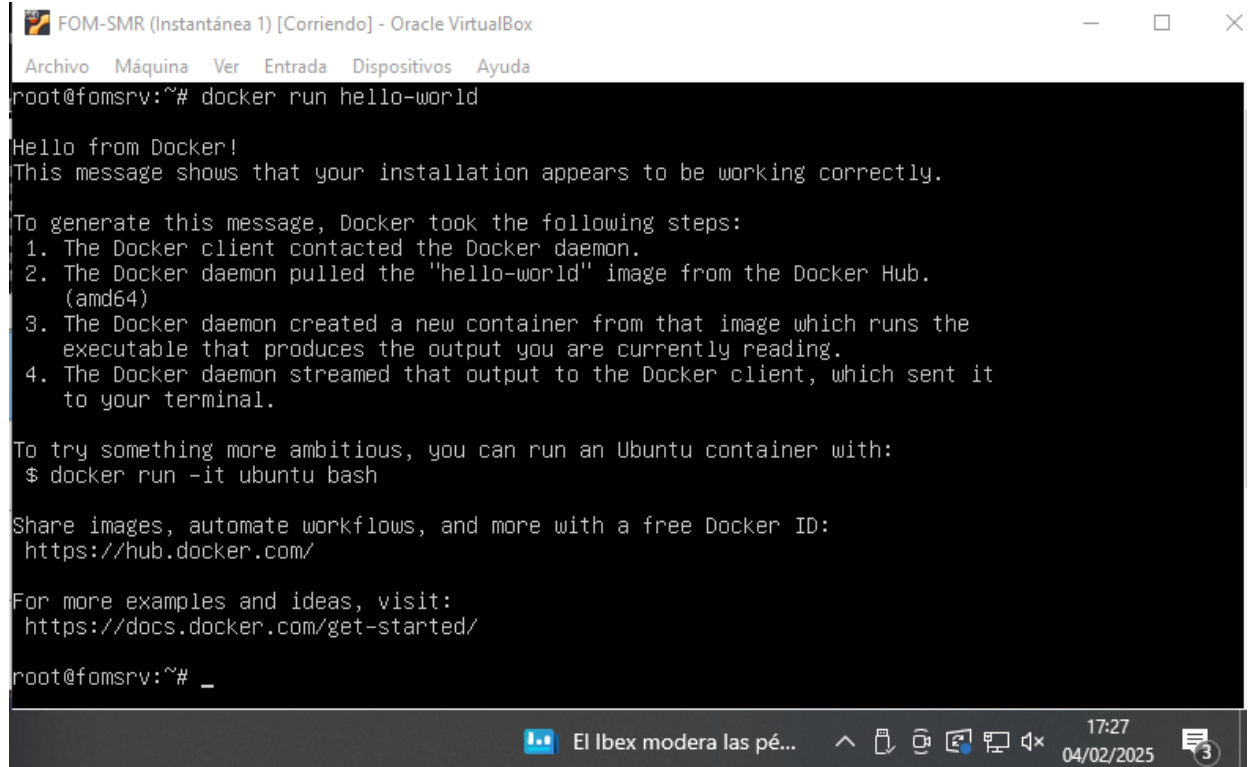
## VAMOS A CREAR NUESTRO MI PRIMER CONTAINER

Vamos a crear un container con Hola Mundo Lo

podemos descargar nuestra imagen de **HUB DOCKER**

docker **pull hello-world** Vamos a ejecutarlo

### Docker run hello-world



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker run hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

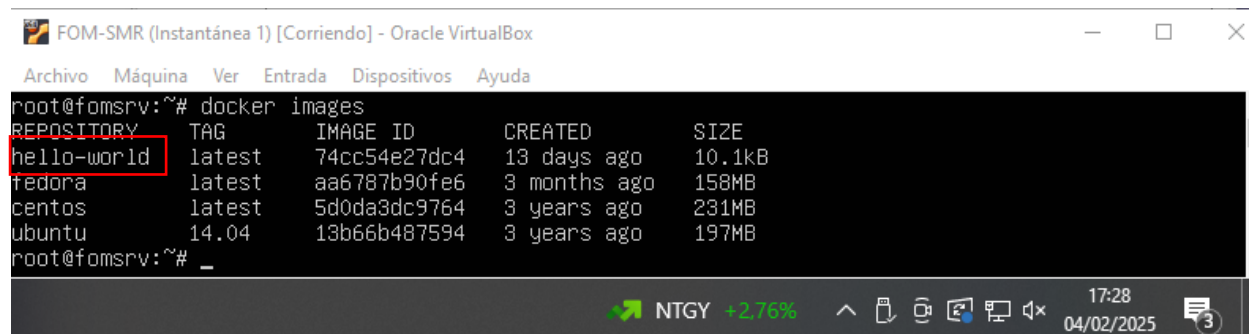
To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

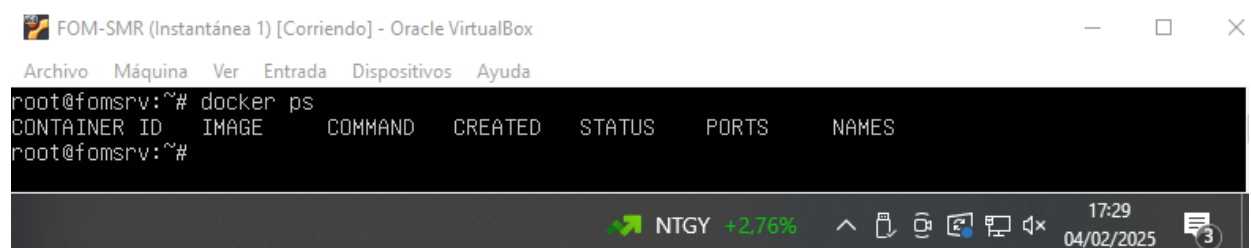
For more examples and ideas, visit:
https://docs.docker.com/get-started/

root@fomsrv:~# _
```



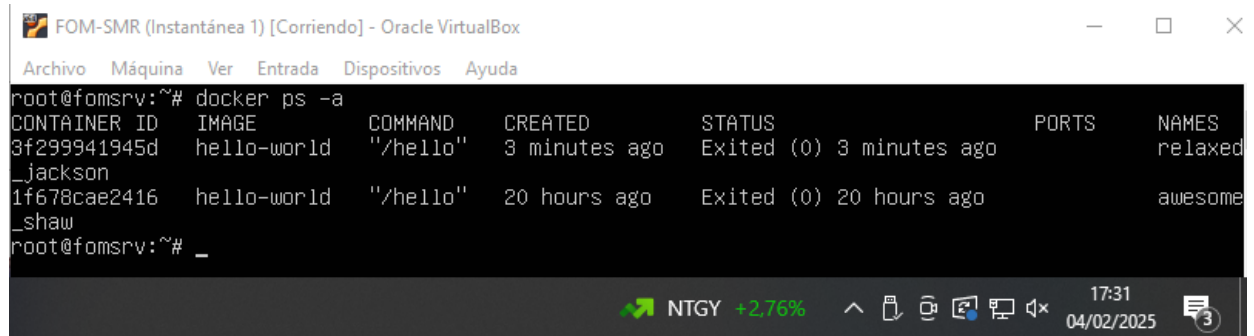
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker images
REPOSITORY      TAG         IMAGE ID      CREATED       SIZE
hello-world     latest     74cc54e27dc4  13 days ago  10.1kB
fedora          latest     aa6787b90fe6  3 months ago  158MB
centos          latest     5d0da3dc9764  3 years ago  231MB
ubuntu          14.04      13b66b487594  3 years ago  197MB
root@fomsrv:~# _
```

Cómo podemos ver los containero en ejecución.



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
root@fomsrv:~#
```

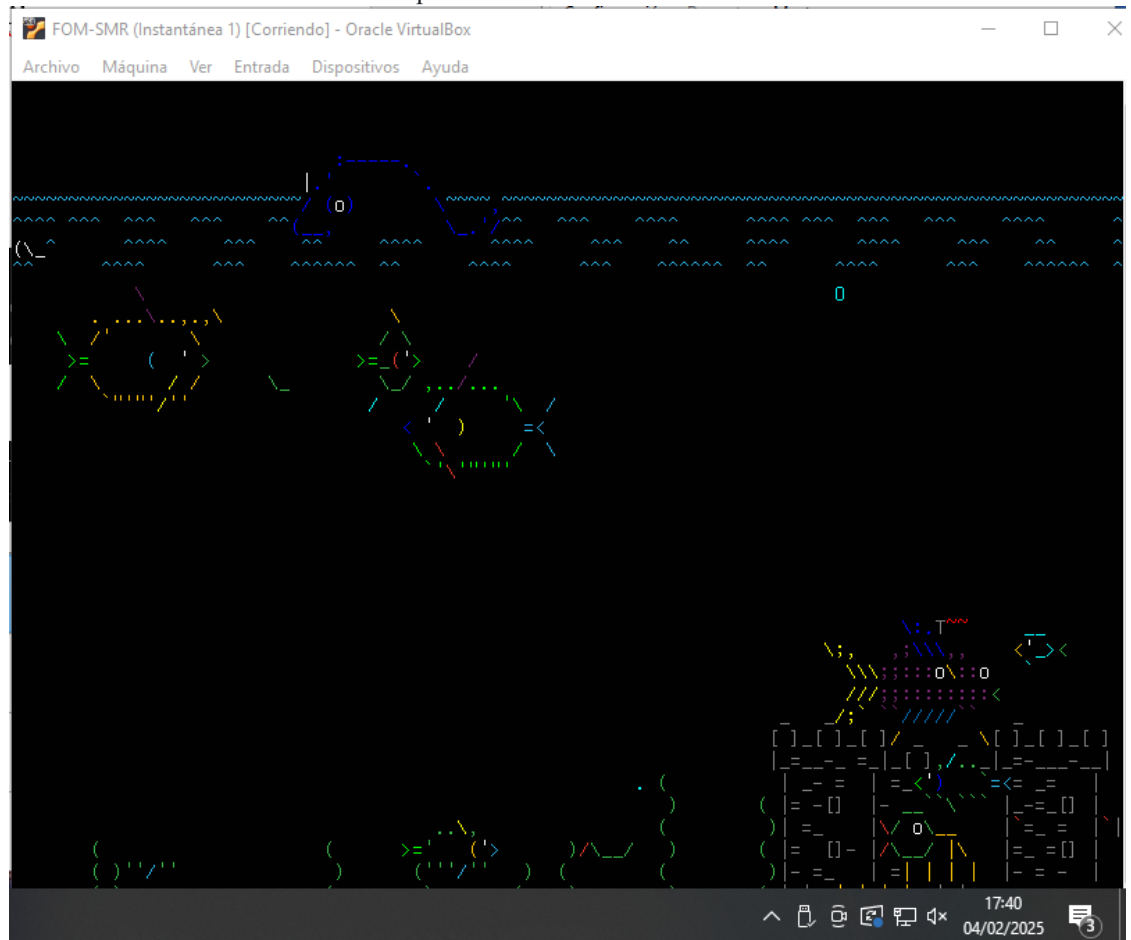
Para ver los contenedores que han sido creados y cuál es su estado. Vemos “**hello world**” ya ha finalizado.



```
root@fomsrv:~# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS              PORTS          NAMES
3f299941945d   hello-world    "/hello"                 3 minutes ago Exited (0) 3 minutes ago           relaxed
1f678cae2416   hello-world    "/hello"                 20 hours ago  Exited (0) 20 hours ago           awesome
root@fomsrv:~#
```

**a) Captura de pantalla con la ejecución del contenedor:**

`docker run -it --rm danielkraic/asciiquarium`



**b) Explica qué ocurre cuando lanzamos el contenedor anterior, pero sin el flag “-it”**

```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# docker run --rm danielkraic/asciiaquarium

FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# docker run --rm danielkraic/asciiaquarium
Error opening terminal: unknown.
root@fomsrv:~#
```

- c) **Explica para qué sirve el flag `--rm`**  
Sirve para eliminar uno o varios contenedores

## COMANDO DOCKER RUN

Ver los contenedores activos

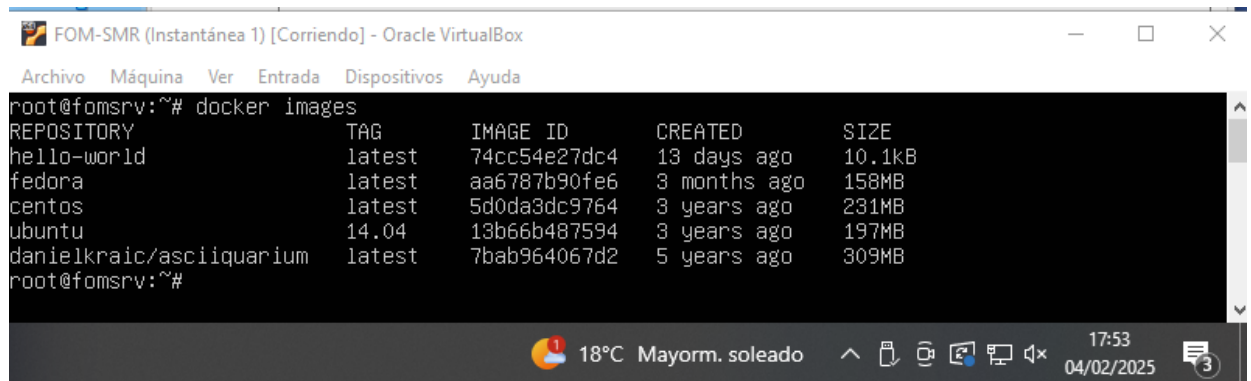
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
3f299941945d   hello-world  "/hello"   18 minutes ago  Exited (0) 18 minutes ago   relax
ed_jackson
1f678cae2416   hello-world  "/hello"   20 hours ago    Exited (0) 20 hours ago   aweso
me_shaw
root@fomsrv:~# _
```

### ☐ Borrar container docker

Comando **docker rm nombre del contenedor**

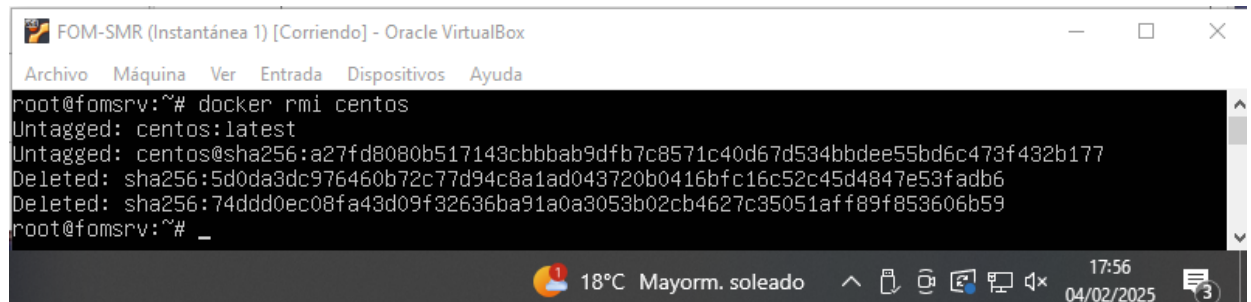
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# docker rm relaxed_jackson
relaxed_jackson
root@fomsrv:~#
```

## Vamos a mirar las imágenes



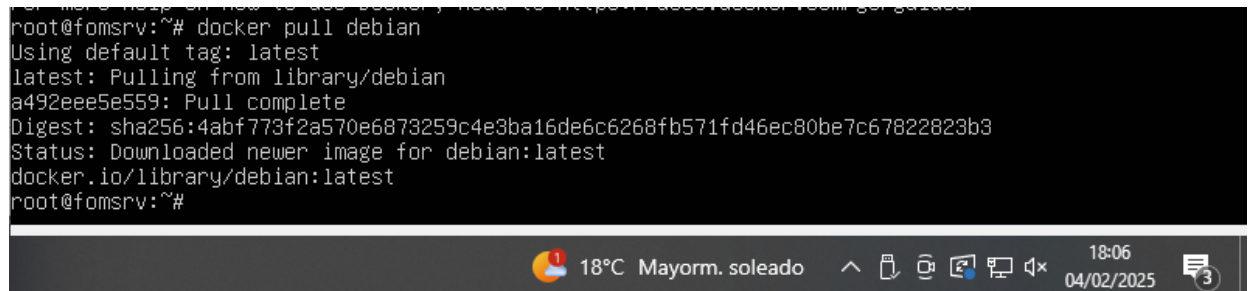
```
root@fomsrv:~# docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
hello-world         latest          74cc54e27dc4   13 days ago    10.1kB
fedora              latest          aa6787b90fe6   3 months ago   158MB
centos              latest          5d0da3dc9764   3 years ago    231MB
ubuntu             14.04          13b66b487594   3 years ago    197MB
danielkraic/asciiquarium latest          7bab964067d2   5 years ago    309MB
root@fomsrv:~#
```

## Para borrar la imagen `docker rmi nombre de la imagen`

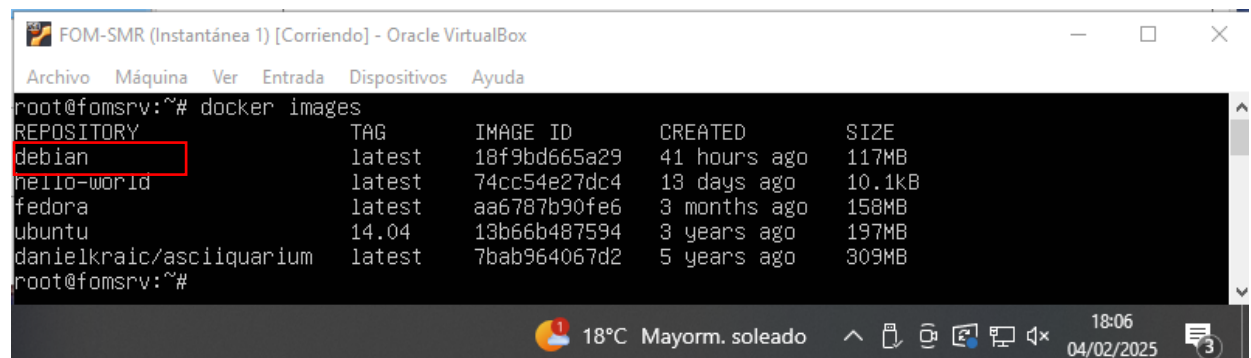


```
root@fomsrv:~# docker rmi centos
Untagged: centos:latest
Untagged: centos@sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Deleted: sha256:5d0da3dc976460b72c77d94c8a1ad043720b0416bfc16c52c45d4847e53fadb6
Deleted: sha256:74ddd0ec08fa43d09f32636ba91a0a3053b02cb4627c35051aff89f853606b59
root@fomsrv:~#
```

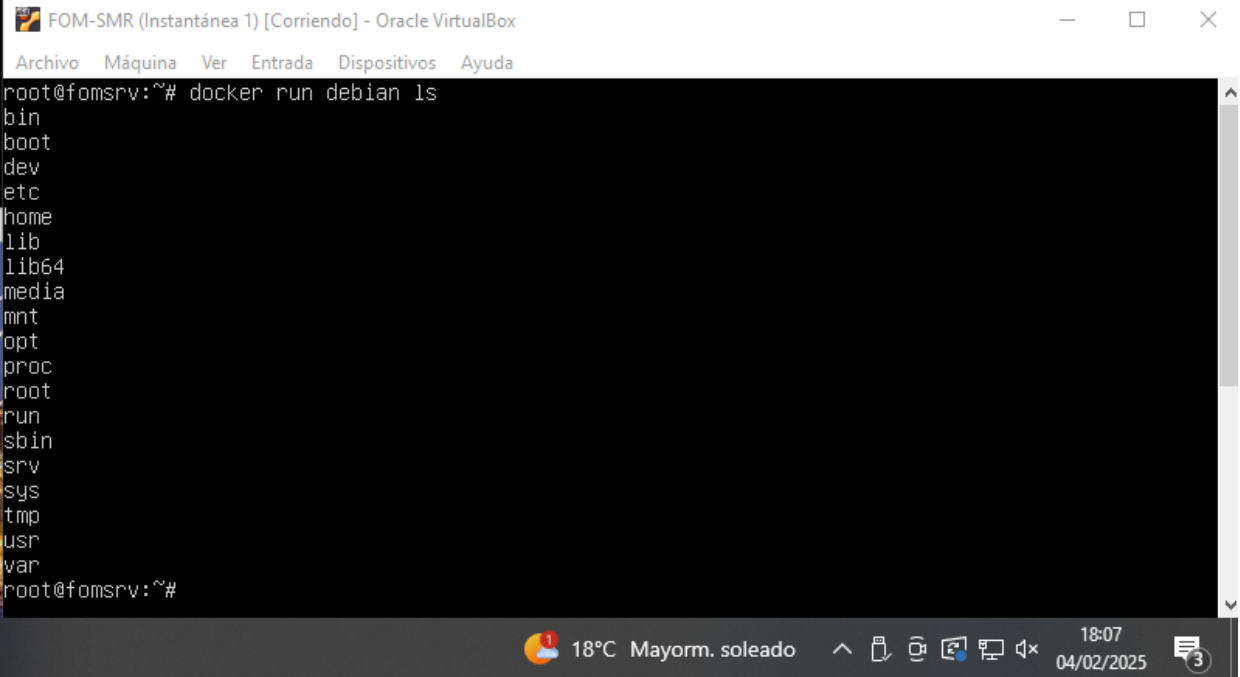
## Vamos a ejecutar un container que será simplemente un "ls" de la imagen de DEBIAN



```
root@fomsrv:~# docker pull debian
Using default tag: latest
latest: Pulling from library/debian
a492eee5e559: Pull complete
Digest: sha256:4abf773f2a570e6873259c4e3ba16de6c6268fb571fd46ec80be7c67822823b3
Status: Downloaded newer image for debian:latest
docker.io/library/debian:latest
root@fomsrv:~#
```

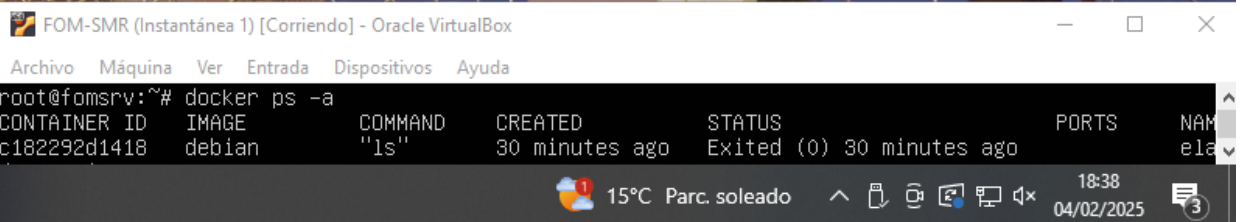


```
root@fomsrv:~# docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
debian              latest          18f9bd665a29   41 hours ago    117MB
hello-world         latest          74cc54e27dc4   13 days ago    10.1kB
fedora              latest          aa6787b90fe6   3 months ago   158MB
ubuntu             14.04          13b66b487594   3 years ago    197MB
danielkraic/asciiquarium latest          7bab964067d2   5 years ago    309MB
root@fomsrv:~#
```



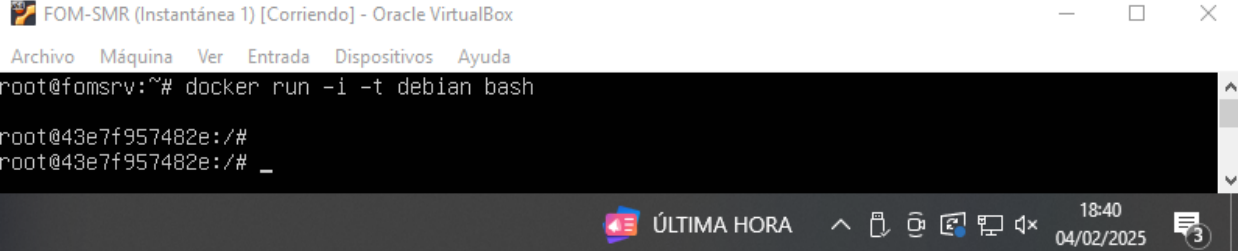
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker run debian ls
bin
boot
dev
etc
home
lib
lib64
media
mnt
opt
proc
root
run
sbin
srv
sys
tmp
usr
var
root@fomsrv:~#
```

Vemos que el container ya ha finalizado



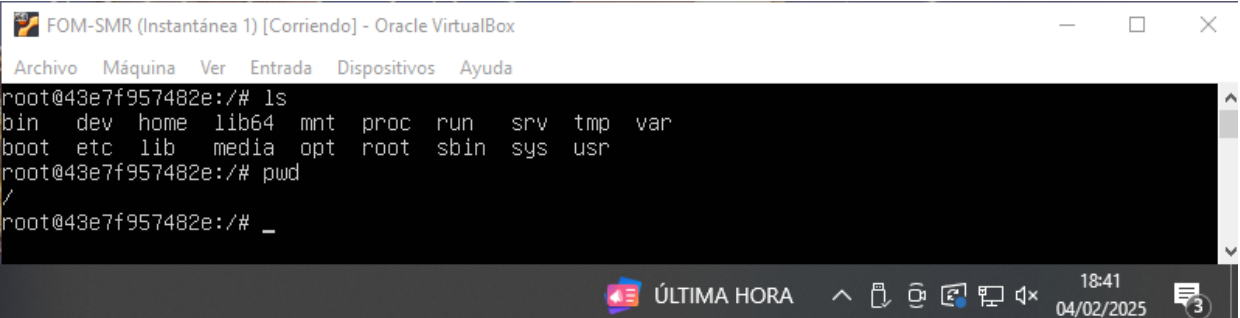
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
c182292d1418   debian    "ls"      30 minutes ago   Exited (0) 30 minutes ago   el...
```

Con **Docker run** podemos entrar en nuestra imagen de *“debian”*, entrar en modo **bash** de Linux y ejecutar los comandos.



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker run -i -t debian bash
root@43e7f957482e:/#
root@43e7f957482e:/# _
```

Ahora estoy dentro de mi container de debian



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@43e7f957482e:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
root@43e7f957482e:/# pwd
/
root@43e7f957482e:/# _
```

Con **exit** me puedo salir del container

```

FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@9b47571bcae3:/home# exit
exit
root@fomsrv:~# docker ps

```

Contenedores activos e inactivos.

```

FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker ps -a && docker images

CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS          NAMES
9b47571bcae3   debian    "bash"                  6 minutes ago Exited (0)    5 minutes ago
me_sammet
43e7f957482e   debian    "bash"                  9 minutes ago Exited (0)    7 minutes ago
ve_lamport
c182292d1418   debian    "ls"                   41 minutes ago Exited (0)    41 minutes ago
d_gagarin
1f678cae2416   hello-world "/hello"               21 hours ago  Exited (0)   21 hours ago
me_shaw

REPOSITORY      TAG          IMAGE ID      CREATED        SIZE
debian           latest       18f9bd665a29  42 hours ago  117MB
hello-world      latest       74cc54e27dc4  13 days ago   10.1kB
fedora           latest       aa6787b90fe6  3 months ago  158MB
ubuntu           14.04       13b66b487594  3 years ago   197MB
danielkraic/asciiquarium latest       7bab964067d2  5 years ago   309MB
root@fomsrv:~# _

```

Borrar imágenes que no dependen de ningún contenedor.

```

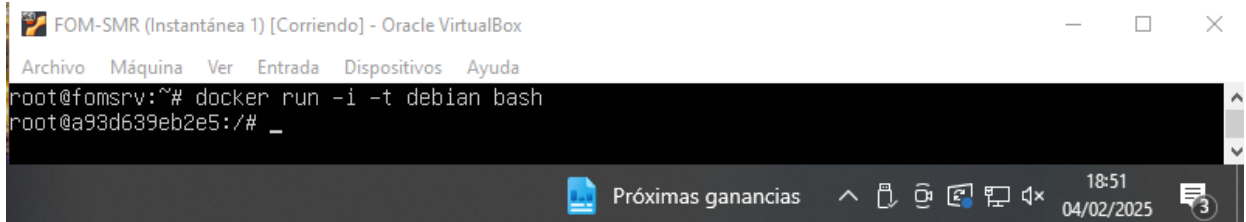
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker image prune -a
WARNING! This will remove all images without at least one container associated to them.
Are you sure you want to continue? [y/N] y
Deleted Images:
untagged: danielkraic/asciiquarium:latest
untagged: danielkraic/asciiquarium@sha256:a9aaa046d674a28cd9d5091e7946c4885d27ac9ead48ce7b7ff5c12c
17fa4d
deleted: sha256:7bab964067d2af9f5438194a7184de2e2edbc94b0e567466625004f67870d2cc
deleted: sha256:a5b5b0bc65280271ddac7d7ff3071ea2caa9225b6608dd6d4e3e9bc6018df166
deleted: sha256:97b94d418dac4ec6da11f188c162831ddf674b08c496d1fd9ebaf5d497f94e08
untagged: fedora:latest
untagged: fedora@sha256:3ec60eb34fa1a095c0c34dd37cead9fd38afb62612d43892fcf1d3425c32bc1e
deleted: sha256:aa6787b90fe61e801687142277458584287469c9596c91766a43fa9f1e524c22
deleted: sha256:a38e2aca5767fd20888481c0e7e96d75eb79fca300b3d076c1cd26b731343782
untagged: ubuntu:14.04
untagged: ubuntu@sha256:64483f3496c1373bfd55348e88694d1c4d0c9b660dee6bfbef5e12f43b9933b30
deleted: sha256:13b66b487594a1f2b75396013bc05d29d9f527852d96c5577cc4f187559875d0
deleted: sha256:e08f4f554d8df6b04f441fcdfe207b6314d3c709daa2b1ef66f79bbfb529b8c4
deleted: sha256:c28d0c854fd56736ef4456e3c1c4276a28159751dc13fd1b340bd38d69473f7e
deleted: sha256:f2fa9f4cf8fd0a521d40e334492b522cee3f35004047e617c75fadeb8bfd1e6b7

Total reclaimed space: 663.6MB
root@fomsrv:~# _

```

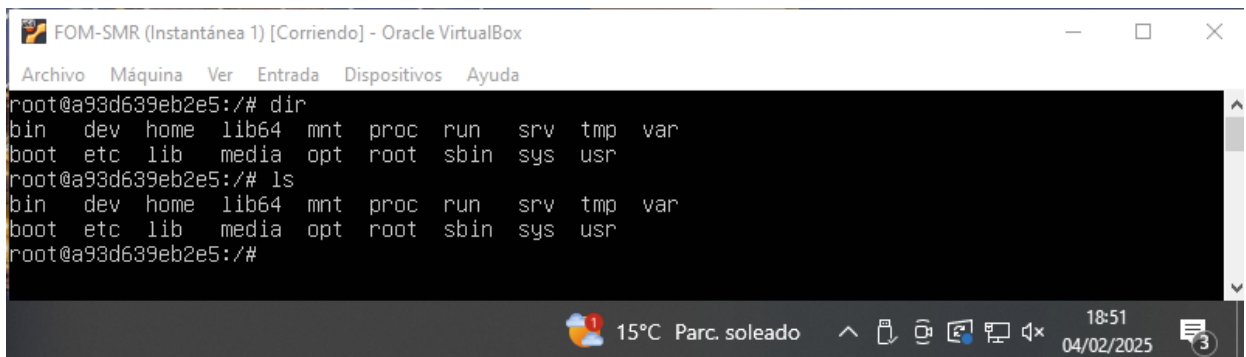
## Crear contenedores interactivos en Docker

Ejecutamos **Docker run -i -t**, “-i” es de input, “-t” es de terminal, aquí entramos en debían



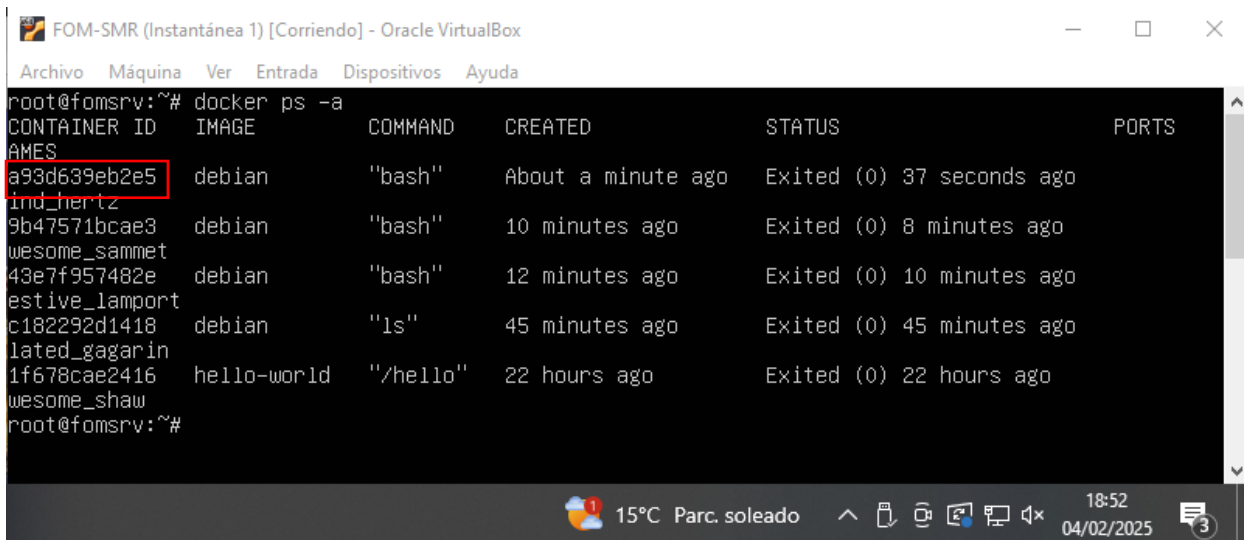
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker run -i -t debian bash
root@a93d639eb2e5:/# _
```

Ya podemos interactuar con el container



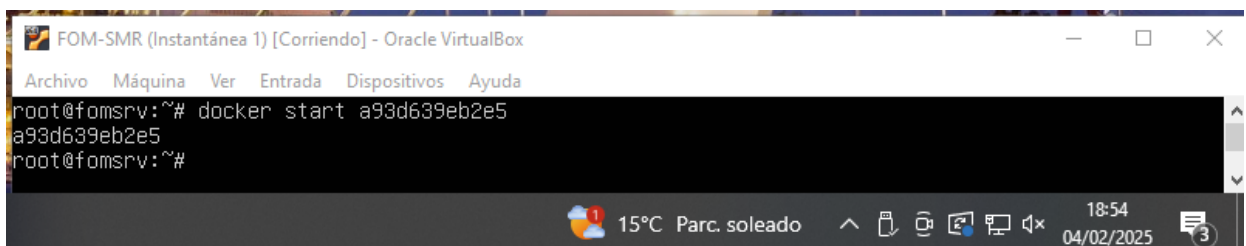
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@a93d639eb2e5:/# dir
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
root@a93d639eb2e5:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
root@a93d639eb2e5:/#
```

Si me salgo del container con **exit** y miro los procesos ejecutados, puedo ver su ID de container que tenía.



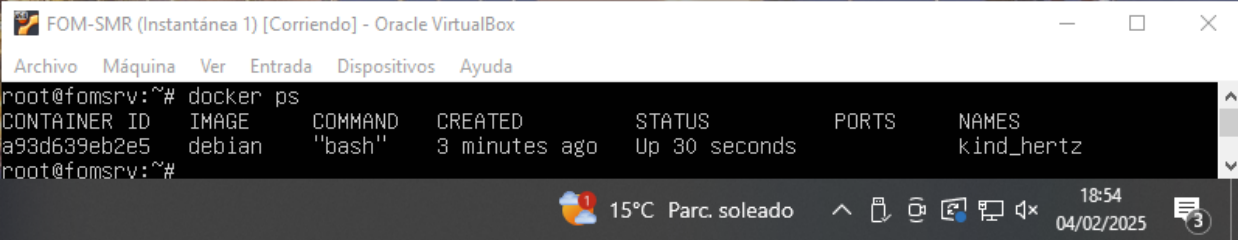
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS
AMES
a93d639eb2e5   debian    "bash"    About a minute ago   Exited (0) 37 seconds ago
ind_hertz
9b47571bcae3   debian    "bash"    10 minutes ago       Exited (0) 8 minutes ago
wesome_sammet
43e7f957482e   debian    "bash"    12 minutes ago       Exited (0) 10 minutes ago
estive_lamport
c182292d1418   debian    "ls"      45 minutes ago       Exited (0) 45 minutes ago
lated_gagarin
1f678cae2416   hello-world "/hello"   22 hours ago         Exited (0) 22 hours ago
wesome_shaw
root@fomsrv:~#
```

Puedo decirle que lo ejecute de nuevo con:



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker start a93d639eb2e5
a93d639eb2e5
root@fomsrv:~#
```

Podemos ver que se está ejecutando con **ps**



FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

```
root@fomsrv:~# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
a93d639eb2e5	debian	"bash"	3 minutes ago	Up 30 seconds		kind_hertz

```
root@fomsrv:~#
```

15°C Parc. soleado 18:54 04/02/2025

Para poder entrar en nuestro container



FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

```
root@fomsrv:~# docker attach a93d639eb2e5
root@a93d639eb2e5:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib   media  opt  root  sbin  sys  usr
root@a93d639eb2e5:/# _
```

15°C Parc. soleado 18:55 04/02/2025

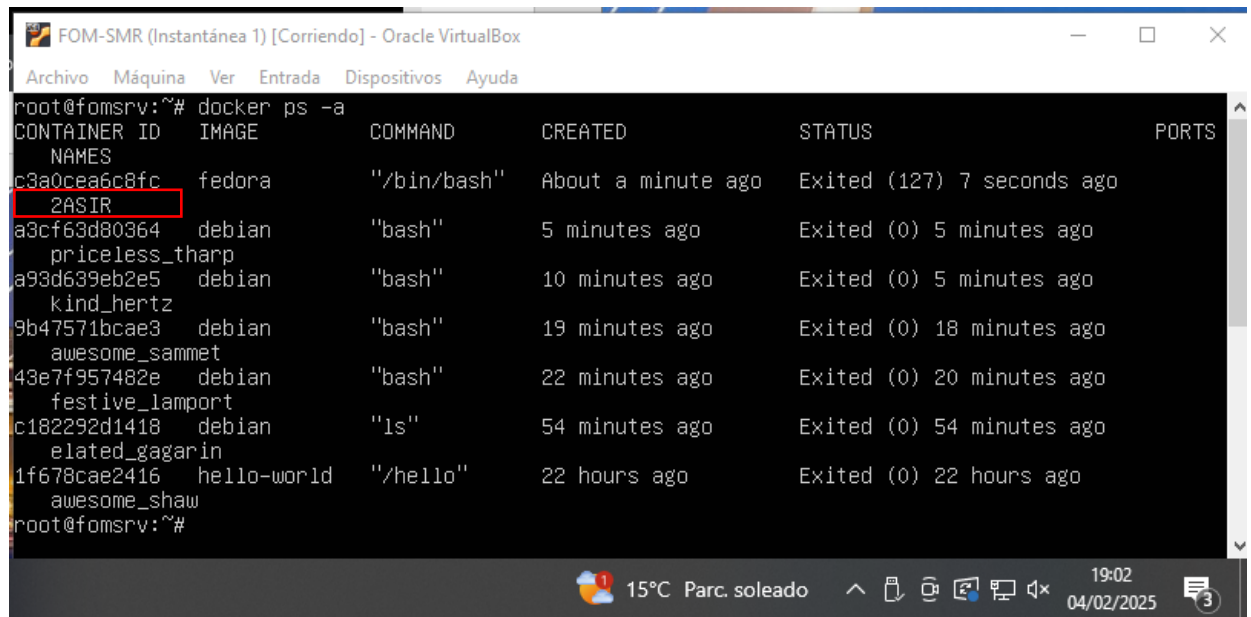


## Crear contenedores con nombres en Docker

```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# docker run -i -t debian
root@a3cf63d80364:/# exit
exit
root@fomsrv:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
a3cf63d80364   debian   "bash"    8 seconds ago    Exited (0) 5 seconds ago           pri
less_tharp
a93d639eb2e5   debian   "bash"    5 minutes ago    Exited (0) 27 seconds ago         kin
hertz
9b47571bcae3   debian   "bash"    14 minutes ago   Exited (0) 13 minutes ago         awe
me_sammet
43e7f957482e   debian   "bash"    16 minutes ago   Exited (0) 14 minutes ago         fes
ve_lamport
c182292d1418   debian   "ls"      49 minutes ago   Exited (0) 49 minutes ago         ela
d_gagarin
1f678cae2416   hello-world "/hello"   22 hours ago     Exited (0) 22 hours ago         awe
me_shaw
root@fomsrv:~# _
```

Le asignamos un nombre a nuestro container

```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
root@fomsrv:~# sudo docker run --name 2ASIR -it fedora
Unable to find image 'fedora:latest' locally
latest: Pulling from library/fedora
0c5a86865c5d: Pull complete
Digest: sha256:3ec60eb34fa1a095c0c34dd37cead9fd38afb62612d43892fcf1d3425c32bc1e
Status: Downloaded newer image for fedora:latest
[root@c3a0cea6c8fc /]# ls -l
total 52
dr-xr-xr-x  2 root root 4096 Jul 17 2024 afs
lrwxrwxrwx  1 root root    7 Jul 17 2024 bin -> usr/bin
dr-xr-xr-x  2 root root 4096 Jul 17 2024 boot
drwxr-xr-x  5 root root 360 Feb  4 18:01 dev
drwxr-xr-x  1 root root 4096 Feb  4 18:01 etc
drwxr-xr-x  2 root root 4096 Jul 17 2024 home
lrwxrwxrwx  1 root root    7 Jul 17 2024 lib -> usr/lib
lrwxrwxrwx  1 root root    9 Jul 17 2024 lib64 -> usr/lib64
drwxr-xr-x  2 root root 4096 Jul 17 2024 media
drwxr-xr-x  2 root root 4096 Jul 17 2024 mnt
drwxr-xr-x  2 root root 4096 Jul 17 2024 opt
dr-xr-xr-x 173 root root    0 Feb  4 18:01 proc
dr-xr-xr-x  2 root root 4096 Oct 31 06:48 root
drwxr-xr-x  2 root root 4096 Oct 31 06:48 run
lrwxrwxrwx  1 root root    8 Jul 17 2024/sbin -> usr/sbin
drwxr-xr-x  2 root root 4096 Jul 17 2024 sys
dr-xr-xr-x  13 root root    0 Feb  4 18:01 srv
drwxrwxrwt  2 root root 4096 Jul 17 2024 tmp
drwxr-xr-x  12 root root 4096 Oct 31 06:48 usr
drwxr-xr-x  18 root root 4096 Oct 31 06:48 var
[root@c3a0cea6c8fc /]# _
```



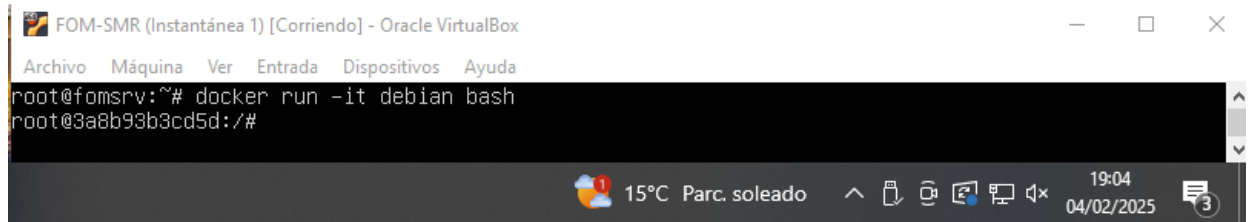
```
root@fomsrv:~# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
c3a0cea6c8fc	fedora	"/bin/bash"	About a minute ago	Exited (127) 7 seconds ago	
2ASIR					
a3cf63d80364	debian	"bash"	5 minutes ago	Exited (0) 5 minutes ago	
priceless_tharp					
a93d639eb2e5	debian	"bash"	10 minutes ago	Exited (0) 5 minutes ago	
kind_hertz					
9b47571bcae3	debian	"bash"	19 minutes ago	Exited (0) 18 minutes ago	
awesome_sammet					
43e7f957482e	debian	"bash"	22 minutes ago	Exited (0) 20 minutes ago	
festive_lamport					
c182292d1418	debian	"ls"	54 minutes ago	Exited (0) 54 minutes ago	
elated_gagarin					
1f678cae2416	hello-world	"/hello"	22 hours ago	Exited (0) 22 hours ago	
awesome_shaw					

```
root@fomsrv:~#
```

15°C Parc. soleado 19:02 04/02/2025

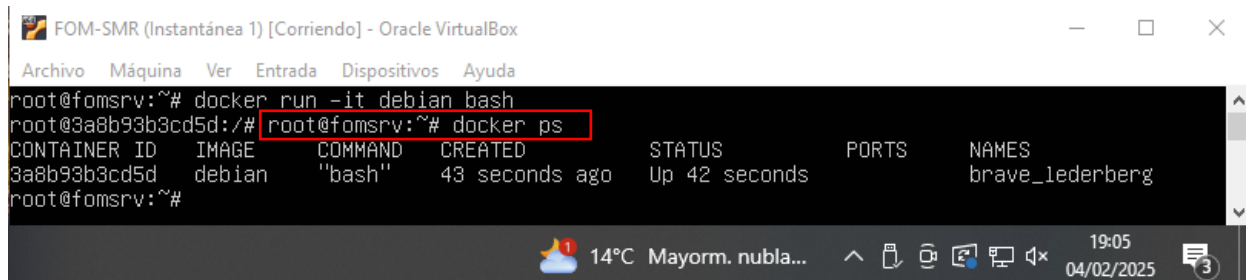
## Salir de contenedor interactivo sin detenerlo en Docker



```
root@fomsrv:~# docker run -it debian bash
root@3a8b93b3cd5d:/#
```

Pulsar **ctrl+p+q**

Vemos que el contenedor se sigue ejecutando



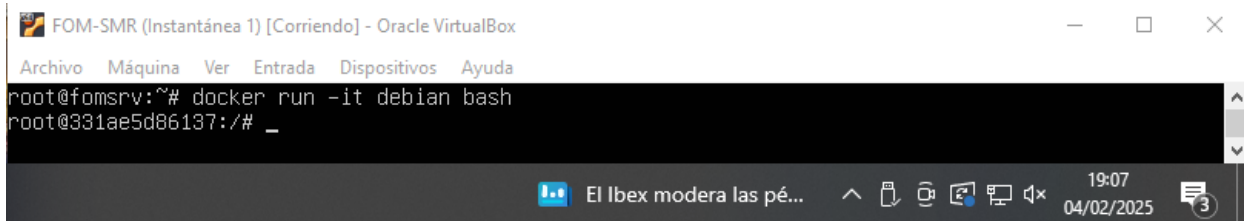
```
root@fomsrv:~# docker run -it debian bash
root@3a8b93b3cd5d:/# root@fomsrv:~# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS               NAMES
3a8b93b3cd5d   debian   "bash"                   43 seconds ago Up 42 seconds               brave_lederberg
root@fomsrv:~#
```

Para volver al container, no hace falta escribir toda la identificación



```
root@fomsrv:~# docker attach 3a8
root@3a8b93b3cd5d:/# ls
bin dev home lib64 mnt proc run srv tmp var
boot etc lib media opt root sbin sys usr
root@3a8b93b3cd5d:/#
```

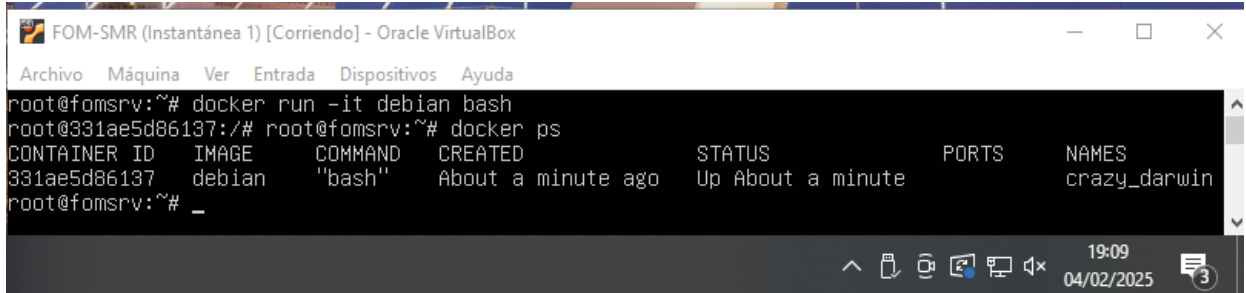
## Iniciar y detener Contenedores en Docker



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker run -it debian bash
root@331ae5d86137:/# _
```

El Ibex modera las pé... 19:07 04/02/2025

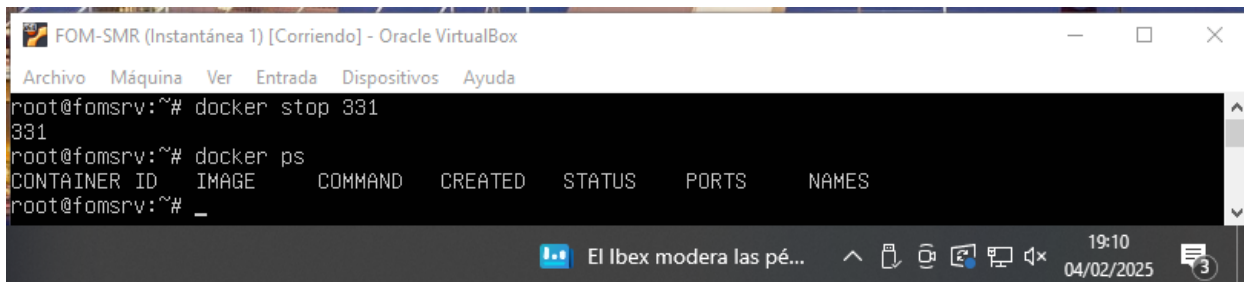
Pulsar **ctrl+p+q**



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker run -it debian bash
root@331ae5d86137:/# root@fomsrv:~# docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
331ae5d86137   debian   "bash"    About a minute ago   Up About a minute   crazy_darwin
root@fomsrv:~# _
```

19:09 04/02/2025

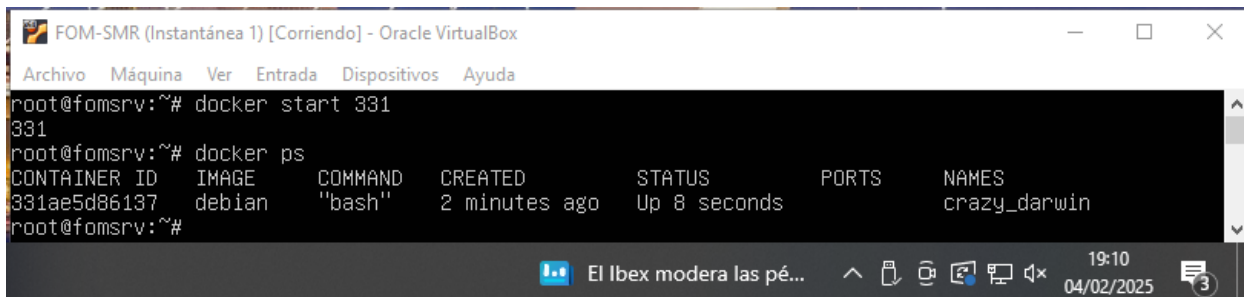
Detener un container



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker stop 331
331
root@fomsrv:~# docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
root@fomsrv:~# _
```

El Ibex modera las pé... 19:10 04/02/2025

Iniciar un container



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker start 331
331
root@fomsrv:~# docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
331ae5d86137   debian   "bash"    2 minutes ago   Up 8 seconds   crazy_darwin
root@fomsrv:~# _
```

El Ibex modera las pé... 19:10 04/02/2025

Para conectarnos los hacemos con **attach**

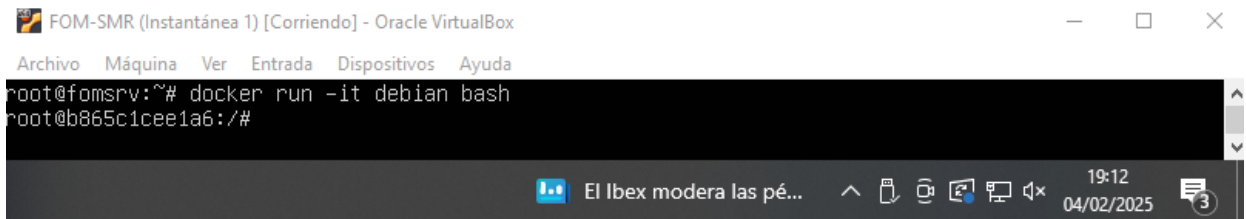


```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# docker attach 331
root@331ae5d86137:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
root@331ae5d86137:/# _
```

El Ibex modera las pé... 19:11 04/02/2025

## Personalizar Containers con imagen de Ubuntu en Docker

Ejecutamos un container



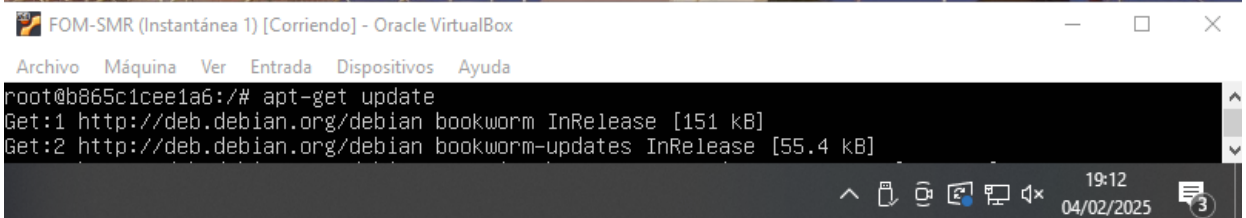
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

```
root@fomsrv:~# docker run -it debian bash
root@b865c1cee1a6:/#
```

El Ibox modera las pé... 19:12 04/02/2025

Actualiza sus dependencias: **apt-get update**



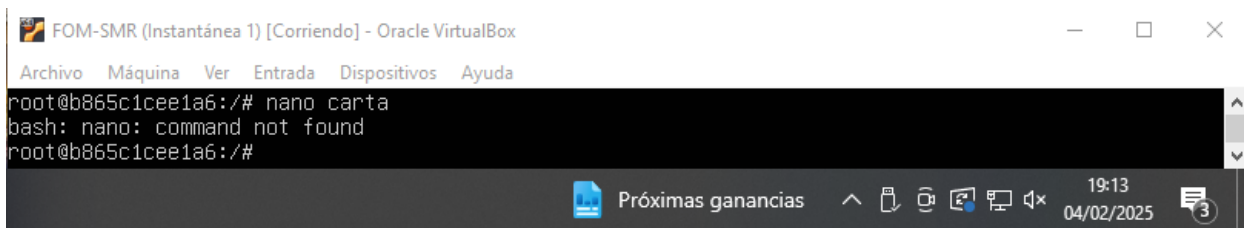
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

```
root@b865c1cee1a6:/# apt-get update
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
```

19:12 04/02/2025

Después de actualizarse, intento por ejemplo ejecutar el editor nano



FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox

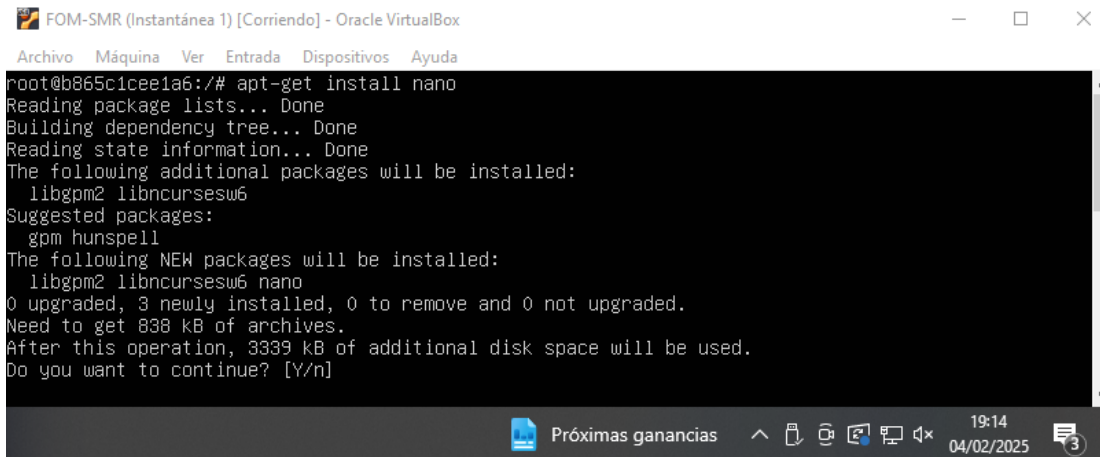
Archivo Máquina Ver Entrada Dispositivos Ayuda

```
root@b865c1cee1a6:/# nano carta
bash: nano: command not found
root@b865c1cee1a6:/#
```

Próximas ganancias 19:13 04/02/2025

Y vemos que no funciona nano

Vamos a instalarlo con apt-get install nano



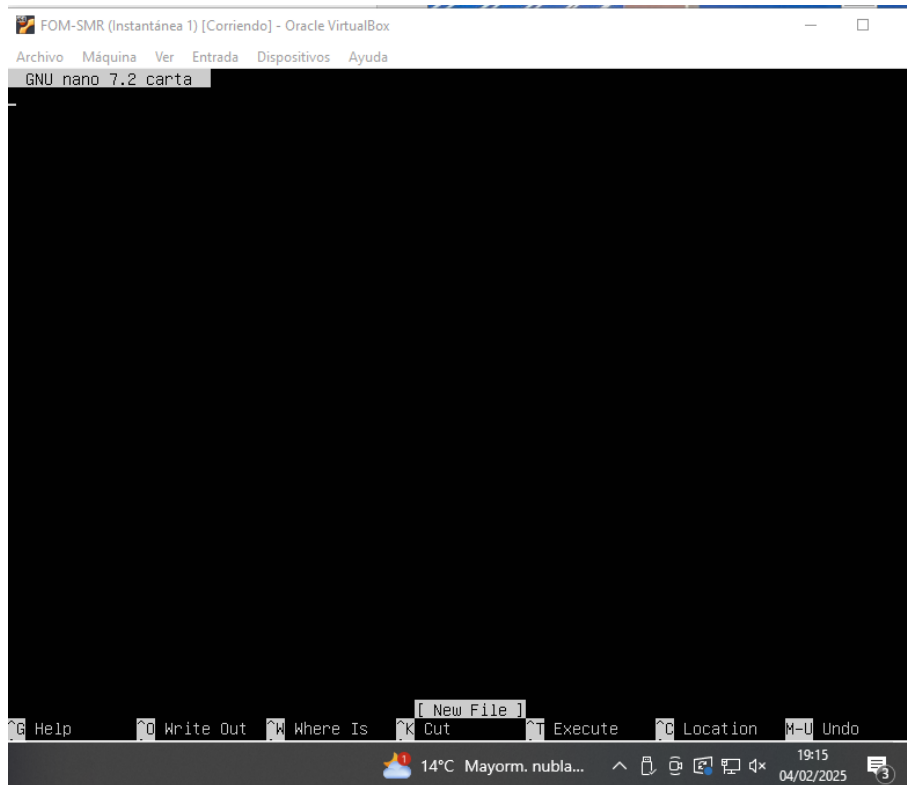
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

```
root@b865c1cee1a6:/# apt-get install nano
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libgpm2 libncursesw6
Suggested packages:
  gpm hunspell
The following NEW packages will be installed:
  libgpm2 libncursesw6 nano
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 838 kB of archives.
After this operation, 3339 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

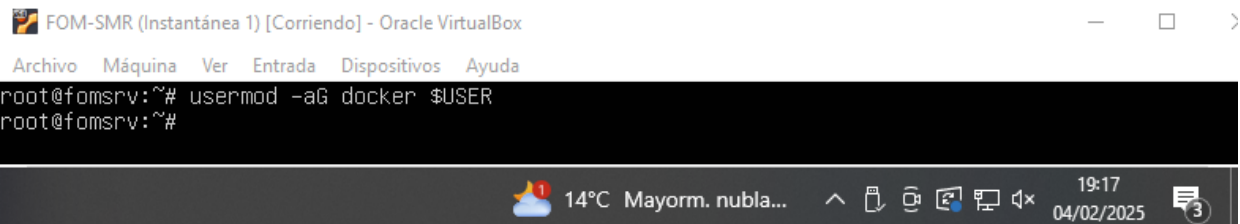
Próximas ganancias 19:14 04/02/2025

Ya funciona



## COMANDO DE DOCKER

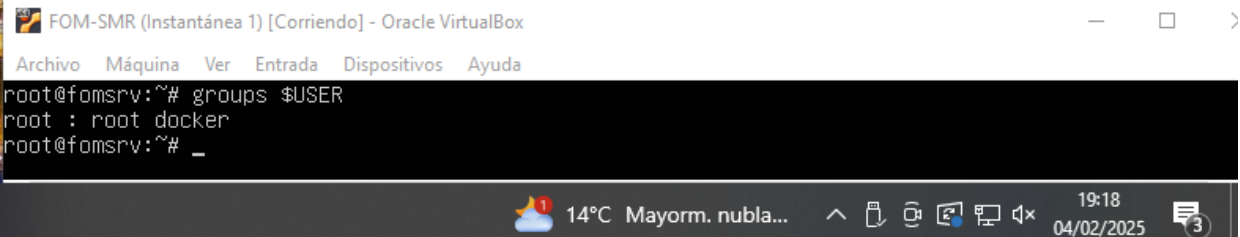
Agregar tu usuario al grupo docker



```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# usermod -aG docker $USER
root@fomsrv:~#
```

14°C Mayorm. nubla... 19:17 04/02/2025

Verificación de que el usuario está en el grupo Docker.



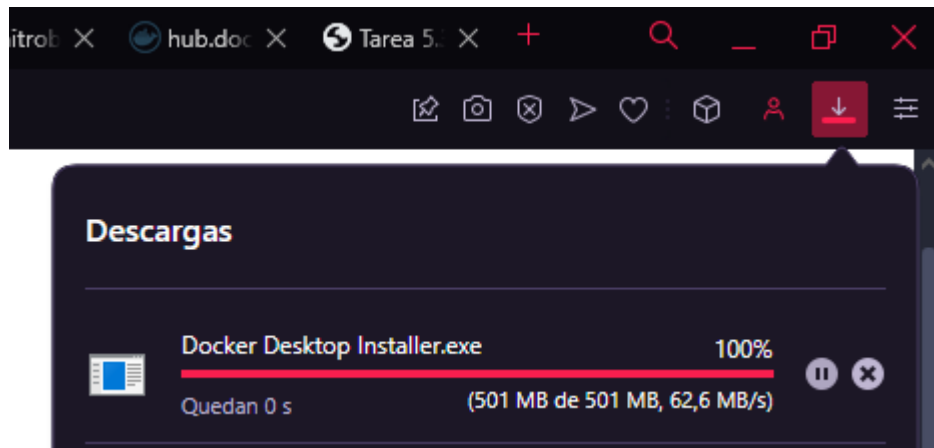
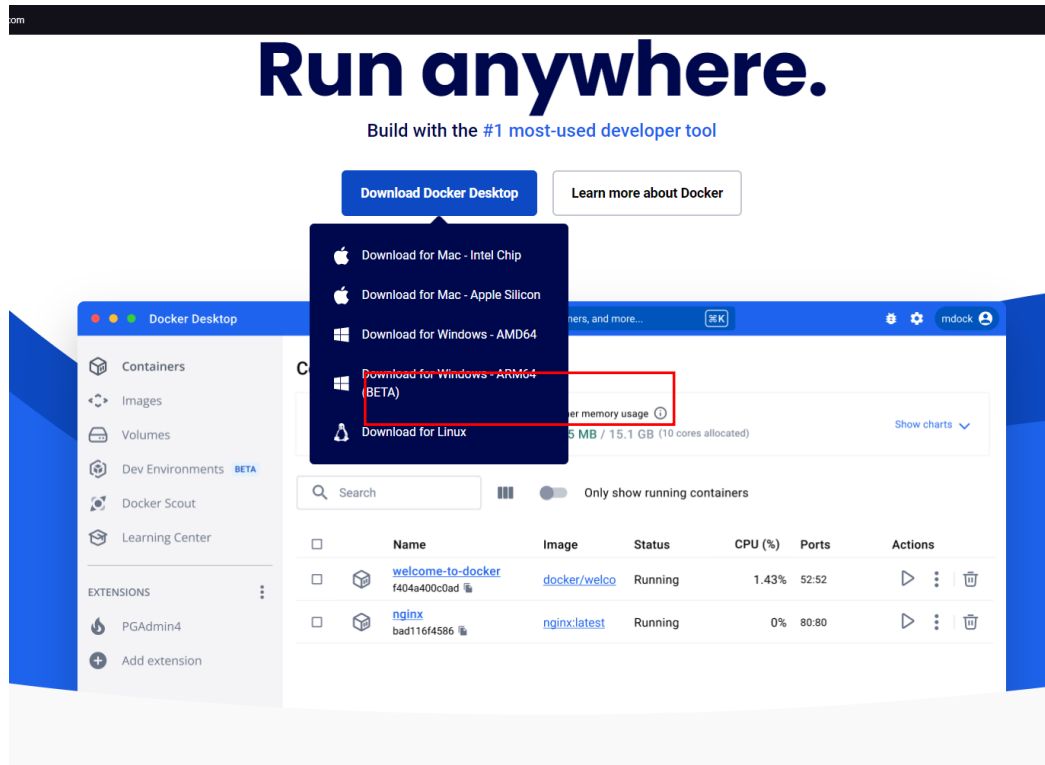
```
FOM-SMR (Instantánea 1) [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@fomsrv:~# groups $USER
root : root docker
root@fomsrv:~# _
```

14°C Mayorm. nubla... 19:18 04/02/2025

# Instalar Docker en Windows.

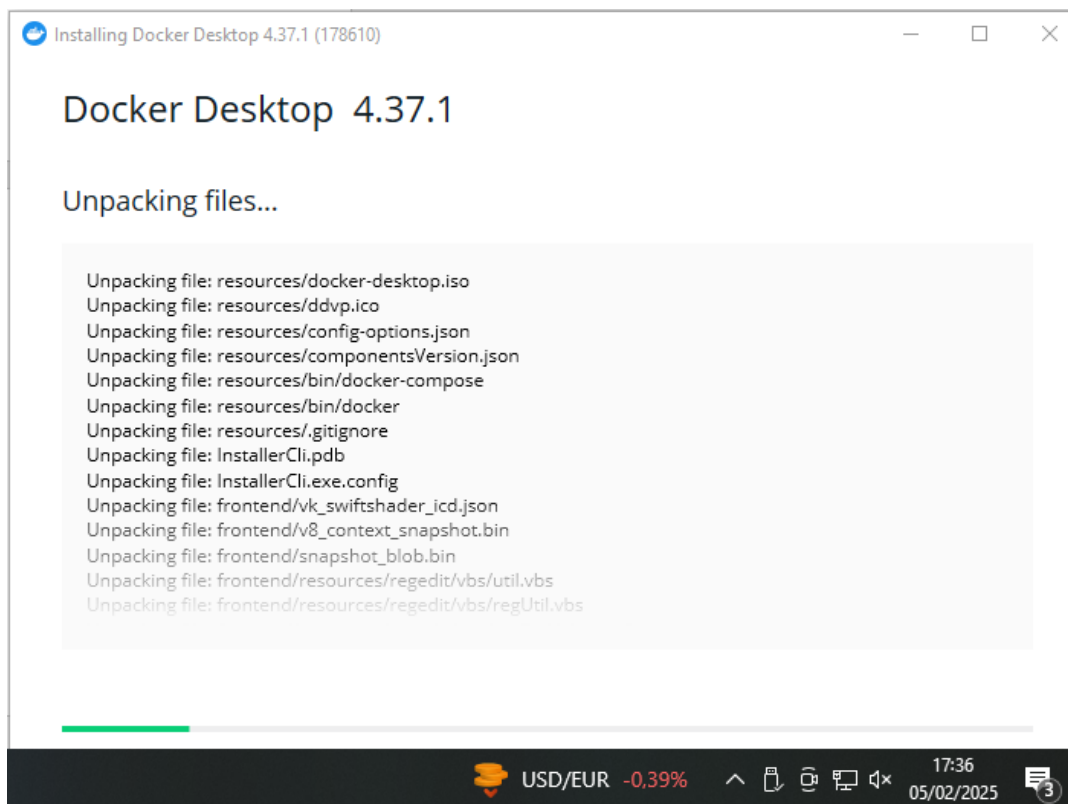
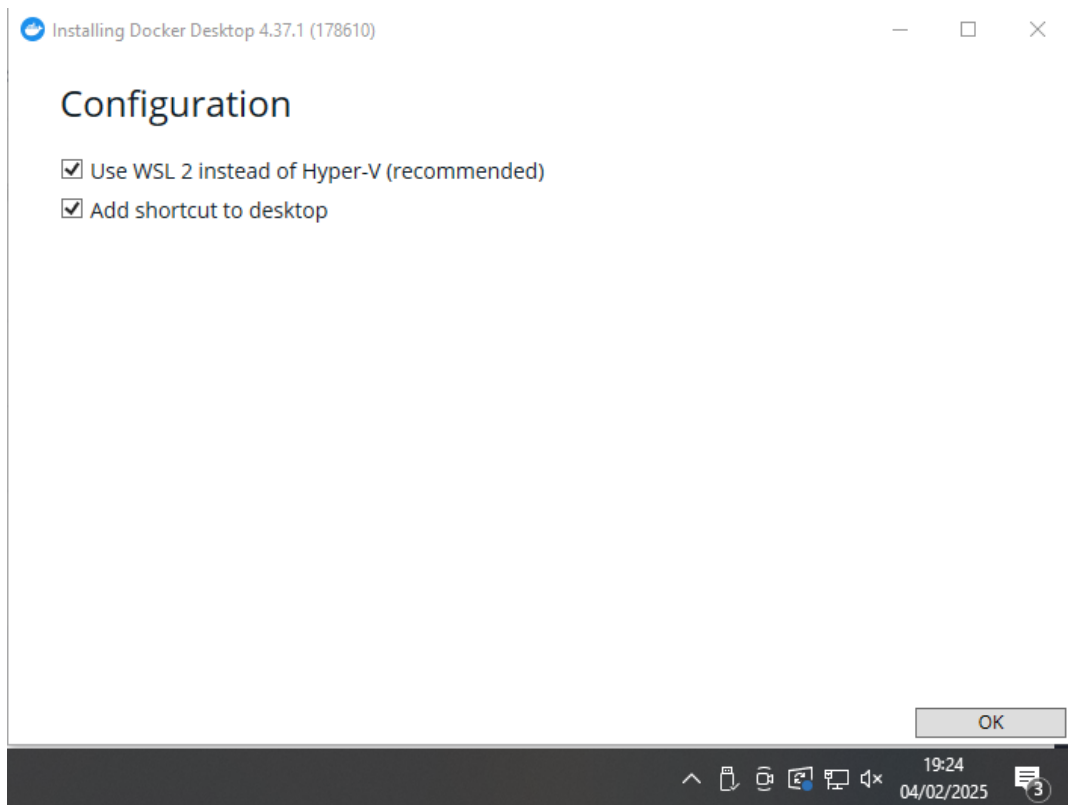
<https://hub.docker.com/>

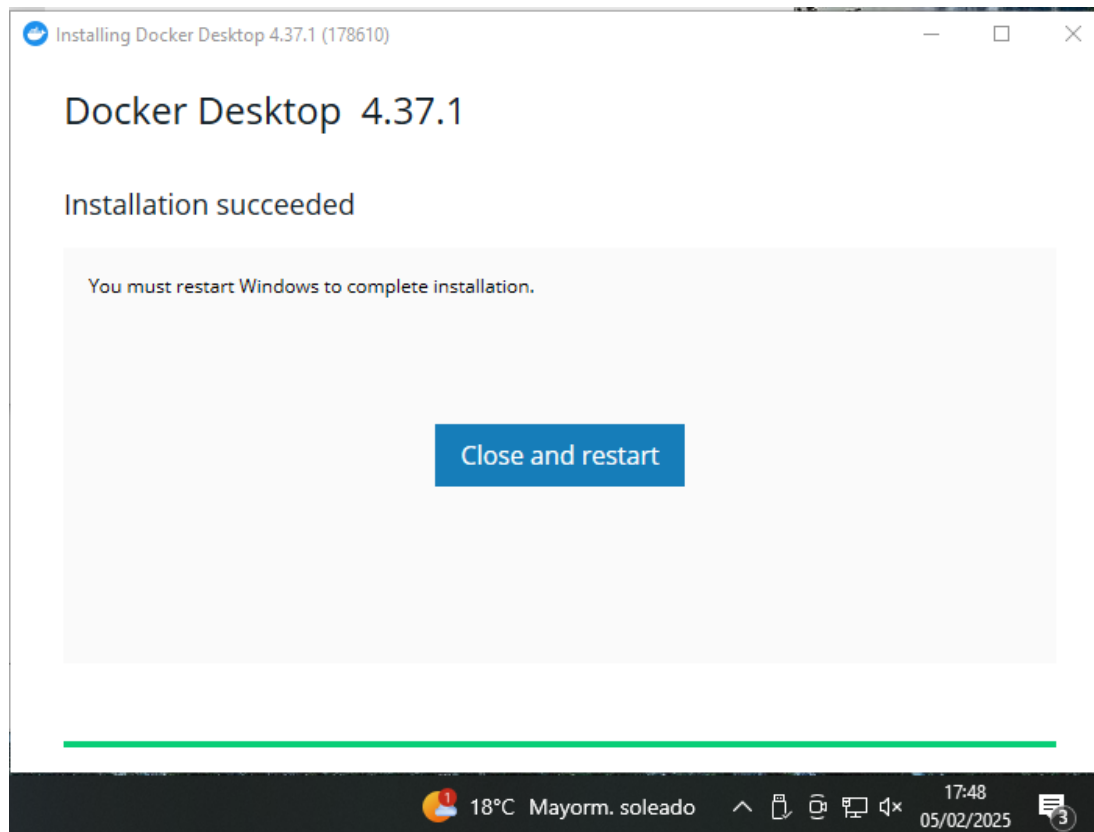
Descarga el instalable para Windows



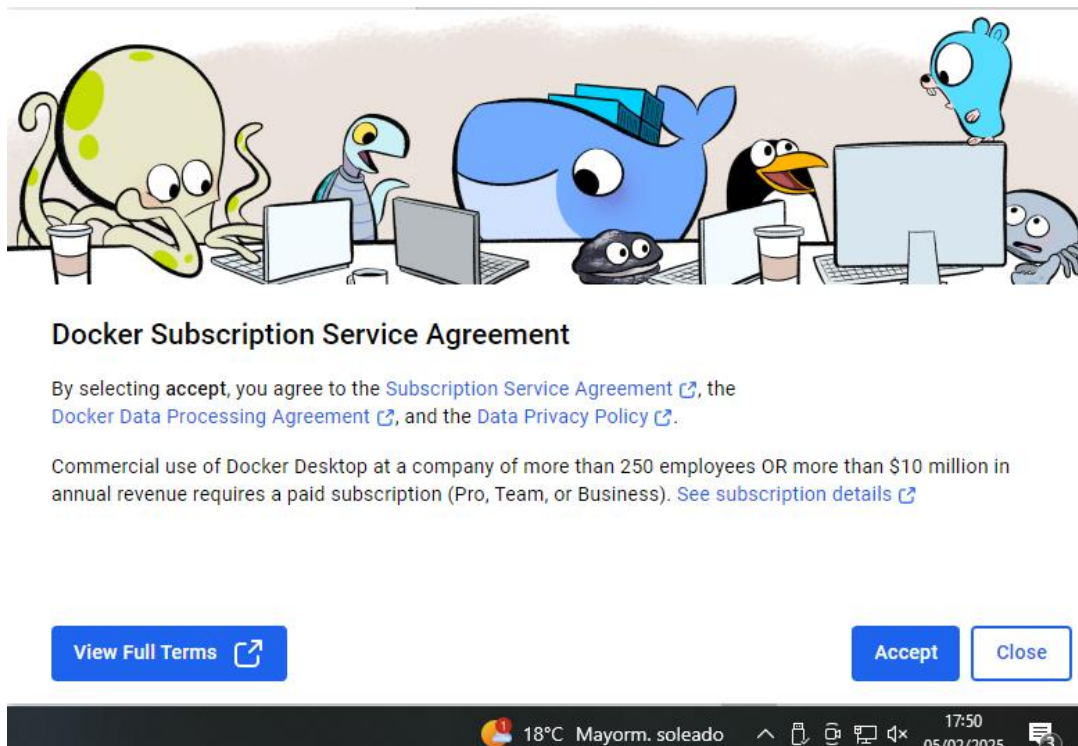


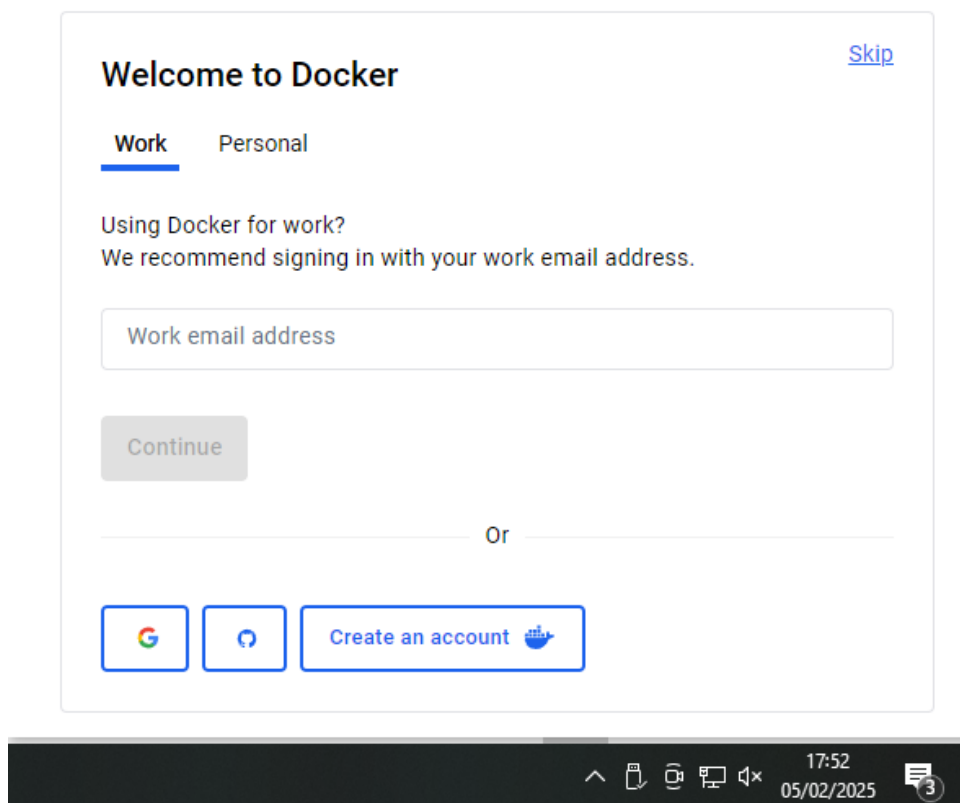
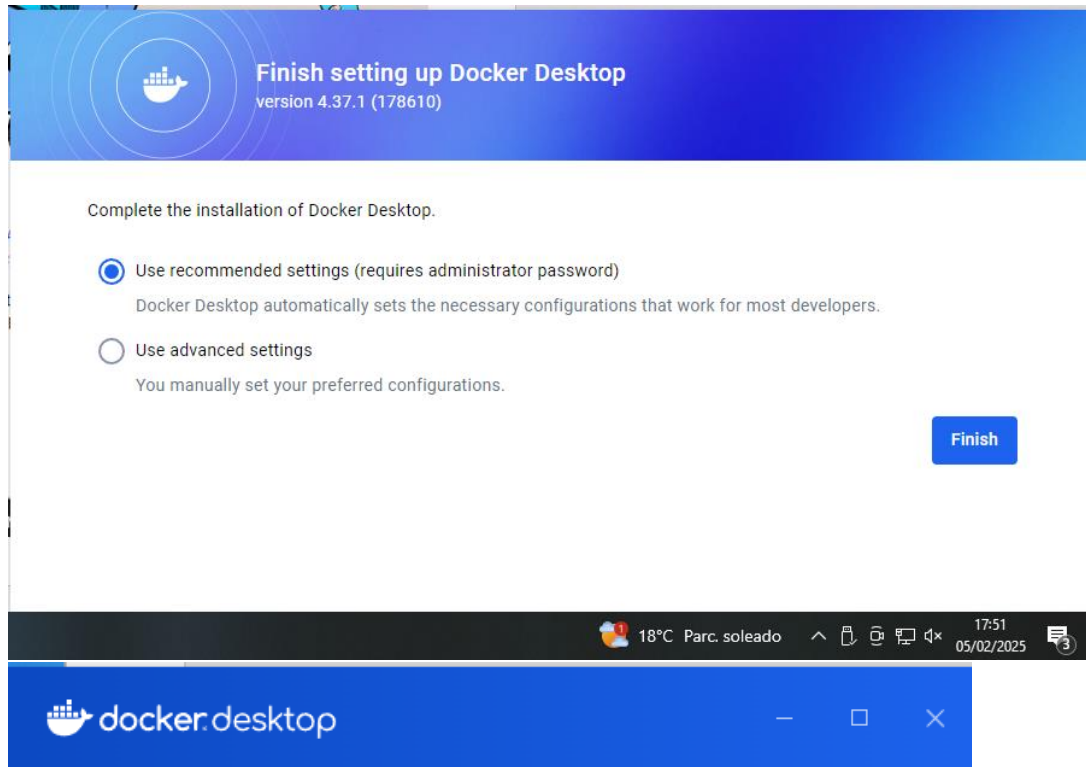
Una vez descargado lo ejecutaremos y comenzaremos la instalación.





Una vez instalado realizaremos la configuración inicial.





Ya realizada la configuración inicial podremos descargar distintos contenedores y ejecutarlos.

The first screenshot shows the Docker Desktop interface after initial setup. The main area displays 'Containers' with a message: 'Your running containers show up here. A container is an isolated environment for your code.' Below this are two tutorial cards: 'What is a container?' (5 mins) and 'How do I run a container?' (6 mins). The bottom status bar shows 'RAM 1.89 GB CPU 0.00% Disk: 1.08 GB used (limit 1006.85 GB)' and a 'New version available' notification.

The second screenshot shows the 'Search results for "UBUNTU"' in the Docker Desktop interface. The left sidebar lists 'Containers', 'Images', 'Volumes', 'Builds', 'Docker Hub', 'Docker Scout', and 'Extensions'. The main area shows search results for 'ubuntu' images, including 'ubuntu', 'ubuntu/cortex', 'ubuntu/kaf...', 'ubuntu/ap...', and 'ubuntu/bro...'. The 'ubuntu' image is highlighted as the 'Docker Official Image' with a 'Pull' button. The right sidebar shows the 'Quick reference' section with links to 'Maintained by: Canonical' and 'Where to get help: the Docker Community Slack, Server Fault, Unix & Linux, or Stack Overflow'.

